

BUTANE-PROPANE

News

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GAS RANGES

FOR SUPERIOR
PERFORMANCE WITH
L. P. GAS

Specially designed



Can't be extinguished by drafts
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drawers or oven door.



Prevents accidental lighting...
Prevents leakage... Safeguards the
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not the burners.

GRAND RANGES • CLEVELAND, OHIO

Division of The Cleveland Co-operative Store Co.

MARCH 1942

★ HACKNEY BUTANE-PROPANE CYLINDERS ★



How Hackney Advantages Have Helped You Get More Customers

A few years ago L-P Gas users were numbered in the thousands—today there are hundreds of thousands! Hackney Cylinders have had a part in this success story. Decreased tare weight has provided important savings which the dealer or the merchandiser has been able to pass along to the consumer. Since the start of the L-P Gas Industry, Hackney Cylinders have been periodically reduced in initial cost. Handling has been made easier and faster.

Intensive research, continuous development and intelligent merchandising have all figured in the rapid growth of this young industry. Hackney Cylinders have kept pace—their design and construction have been planned with user's needs in mind. Absolute satisfaction has been assured.



PRESSED STEEL TANK CO.

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Because of the urgent need of materials for the emergency, deliveries may be interrupted. Pressed Steel Tank Company, in addition to doing its share during the emergency, is doing its utmost to continue to serve its customers.

HELPING TO WIN A WAR



"What am I doing to help win this war?" That's a question everyone should ask himself.

We did — and here's an account of our contribution to victory. We are making heat controls required for national defense. Many of these are going into equipment for defense housing where they will help supply defense workers with properly cooked, energy-building foods. We have converted a large part of our civilian facilities and have added tremendously to our plant capacity—all of these facilities producing munitions for the armed forces. We are working 24 hours a day, 7 days a week to supply our share of the maximum effort required to win total war.



ROBERTSHAW

HEAT CONTROLS

ROBERTSHAW THERMOSTAT COMPANY
YOUNGWOOD, PA.



BUTANE-PROPANE

News



Reg. U. S. Pat. Off.

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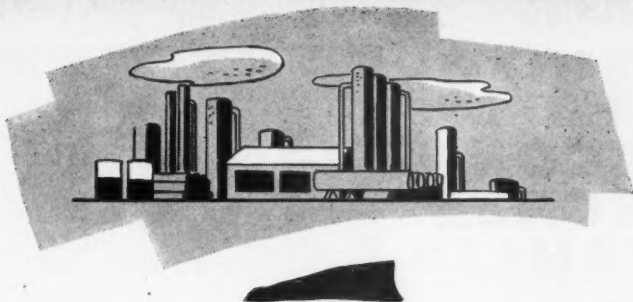
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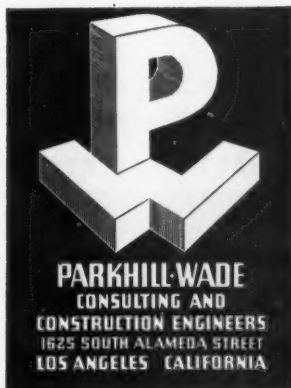
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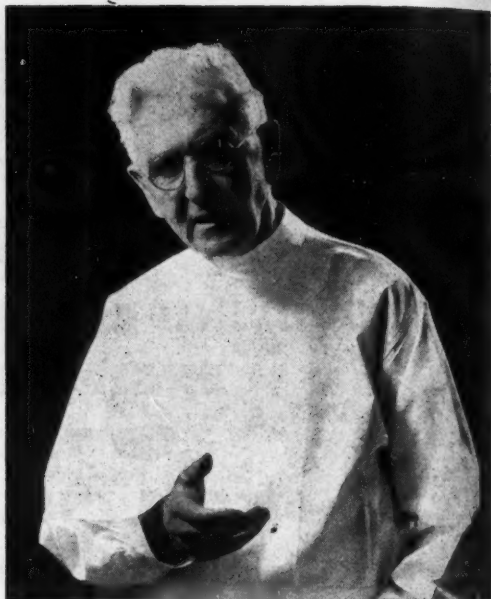


**CONSULTING & CONSTRUCTION
ENGINEERS
TO THE
LP-GAS INDUSTRY
FOR THE
ENGINEERING, DESIGN & CONSTRUCTION
OF PLANTS
FOR THE FRACTIONATION OF ALL
LIGHT HYDROCARBONS**



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LOS ANGELES CALIFORNIA

**"IT'S
SECOND
DEGREE
BURNS!"**



Some one threw a lighted match while the plumber was refilling his gasoline furnace—there was an explosion—followed by the shrieking of ambulance sirens on the dash to the emergency hospital—and now the report "It's Second Degree Burns." That's mighty serious, and so unnecessary. Discard your gasoline furnaces and torches and use Ransome Butane equipment—it's decidedly safer.

RANSOME COMPANY

Designing and Constructing Engineers

4030 HOLLIS STREET • EMERYVILLE, CALIFORNIA

Ransome

LETTERS

Gentlemen:

Please advise where we may purchase spuds and risers to change a butane range to propane.

C. W. R.

Minnesota

There is absolutely no difference in the utilization characteristics of butane and propane as far as the appliance and burner design is concerned. Consequently, there should be no necessity for the use of extensive changeover with spuds and risers. Most LP-Gas ranges are equipped with fixed orifices. The heating values and specific gravities of commercial propane and butane are such that the flow through the orifice is practically the same for either gas.

Gentlemen:

The last chapter of the "Bottled Gas Manual" on "Laying out and Running the LP-Gas Pipe Lines", mentions one subject not often found in service literature; that is the matter of pressure changes in high buildings. Do you have more specific information—exactly how much change there is in pressure at different levels? Any further information you may have on the subject will be appreciated.

I am a regular reader of your splendid magazine and have enjoyed particularly the Bottled Gas Manual series. Each installment is eagerly awaited.

E. A. C.

Maine

The decrease in static pressure for propane gas does not appear to be very significant in ordinary piping layouts. For example, in an eight-story building, the pressure decrease would be about 1-in. water column. In other words, if the regulator in the basement were set at 11-in. the static pressure on the top floor would be about 10-in. water column.

Static pressure is defined as the gage reading with no gas flow in the line. It would appear that for very exact work or for very tall buildings the suggestion to use a separate regulator on each floor could be carried out.

The other variable which affects the reading on a water column gage is the rate of flow in the pipe line. If the flow increases, the static pressure drops off, due to friction loss in the piping and conversion of static head into velocity head. The velocity head is a very small factor, compared to the friction head loss. Consequently pipe flow tables are based on friction pressure drop.—Ed.

Gentlemen:

In regard to tank car shortage, our industry has begun to realize that the Government may be making hard work of this matter of tank car shortages for liquefied gases. It has already been suggested that natural gasoline cars may be adapted to this service by raising the safety valve setting from 60 lbs. to 70 lbs. This matter might involve some time and delay. We have another suggestion to make which occurs to us through our old-time use of butane and pentane mixtures for generating stoves.

As little as 15% of pentane will greatly reduce the vapor pressure of butane.

One hundred octane requires both isobutane and isopentane. Both of these liquefied gases are very useful in manufacturing aviation gasoline.

Most refineries have large columns. The refiners insist on a better "cut" than most gasoline plants can make. A large "cut" comprising isobutane, butane and isopentane might be shipped to the refinery in natural gasoline cars. Or a neat solution would consist in mixing isopentane and isobutane and shipping them in ordinary natural gasoline cars. These two products, as they occur in their

natural ratio at the gasoline plant, would not generate a pressure of 60 lbs. at 125° temperature.

While it might not always be practical to have an isobutane and isopentane column in the gasoline plant, yet inasmuch as double quantities are produced we would judge that it would pay just as well to work fewer plants and produce double the quantity of aviation gasoline.

It may be possible that this suggestion may further the thought of those who are attacking this problem.

A. N. KERR

President, Imperial Gas Company
Los Angeles, California

Gentlemen:

We have heard that you are publishing a series of articles on the fundamentals of bottled gas operation. Please tell us about this.

R. W. B.

Texas

In the July issue of BUTANE-PROPANE News started a very important series of articles which is entitled "The Bottled Gas Manual." It will run for approximately two years, with one installment in each issue. In essence, it constitutes a text book on the bottled gas end of the LP-Gas industry.—Ed.

Gentlemen:

Meters and control valves are commonly rated at so many cubic feet per hour for manufactured gas, specific gravity 0.6 at a certain pressure drop, often 0.5 in.

What method should be followed to determine the capacity for pressure drop for propane gas?

W. T. R.

Massachusetts

Meters and control valves which have been rated in cubic feet per hour for manufactured gas, specific gravity 0.6, may be converted to an equivalent capacity for propane. This method is common practice in the industry. The rating on propane (cubic feet per hour) is 63% of the rating on manufactured gas. This factor is based on the gas flow equation, which states that the flow through any orifice is inversely propor-

tional to the square root of the specific gravity.

It would not be advisable to extend this same method of figuring capacity to pressure control valves or regulators. Reference to the A.G.A. Listing Requirements for pressure regulators will show that there are three factors, any one of which may determine the maximum capacity of the regulator. It is true in some cases that the pressure drop with the valve in the wide open position determines the maximum capacity of the regulator but the requirements also involve a test of the regulation characteristics.—Ed.

Gentlemen:

Could you furnish me with any information, or suggest where I might get it, concerning the proper ratio of capital investment to annual gross sales in a retail butane gas business?

This seems to me to be one of the fields in which our new industry needs considerable enlightenment, and sooner or later it becomes the most important problem for every retail firm.
E. R. W.

Florida:

We have published several articles during the past year in BUTANE-PROPANE News that bear upon this subject.

In the May, June, and July, 1941 issues appeared a series of three articles entitled "Bottled Gas Marketing", by C. C. Turner, which frequently carried references bearing upon the subject in which you are interested. In the August and October issues you will find articles by Victor T. Mavity, the first entitled, "Rates for LP-Gas Service", and the second entitled, "One Dealer's Viewpoints on LP-Gas Economics", which contain much helpful information.—Ed.

Gentlemen:

Kindly advise where the National Fire Protection Association is located.
R. P. J.

Ohio

The address of the National Fire Protection Association is 60 Battery St., Boston.—Ed.

• BUTANE-PROPANE News welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.

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*Yardstick
of Value*

**AMONG
LPG
PUMPS**

★ Thousands of owners agree that Tokheim is the yardstick of value among LPG Pumps—for these famous units (four models) are designed exclusively for LPG dispensing and have many features never before available. Positive piston displacement type measuring unit and patented differential control assure a solid column of liquid from your tank to customer's tank—and guarantee accurate measurement. High speed delivery and cam type automatic nozzle valve are other special features. For further facts, ask any owner—or write the factory.

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GENERAL PRODUCTS DEPARTMENT
FORT WAYNE INDIANA**



GEORGE W. BACH
Guest Editor for March

Never Say Die!

By GEORGE W. BACH

President, Liquefied Petroleum Gas Association, Inc.

WHEN, in a few short years, hundreds of thousands of American families learn of the saving of time and work, the health guarding advantages of the suburban and rural servant—LP-Gas—it is reason enough why a growth that seems normal to us may seem startling to those who have not before heard of this industry.

When lives are saved in hospitals and institutions in rural communities, when workmen constructing isolated plants for war industries and workers to man the machines are well fed, when housewives are liberated from hours of toil at home and turn to work for the Red Cross, the U.S.O., and community canning projects, you can count on the flawless dependability of the utility type servant that knows no bounds—LP-Gas!

When modernization of homes in communities deprived of even ordinary conveniences—the “forgotten families”—was the goal of the Government,, our industry had already stepped in and brought the accepted city living standards to the country. Quickly the beneficiaries of LP-Gas numbered more than the millions of New York City, more than double the people of great Chicago. Almost overnight, an association of the industry came into being and at a recent single sectional meeting in New Orleans, more than 50 companies, sensing the personal benefits and realizing the strength of a united front, joined in open meeting.

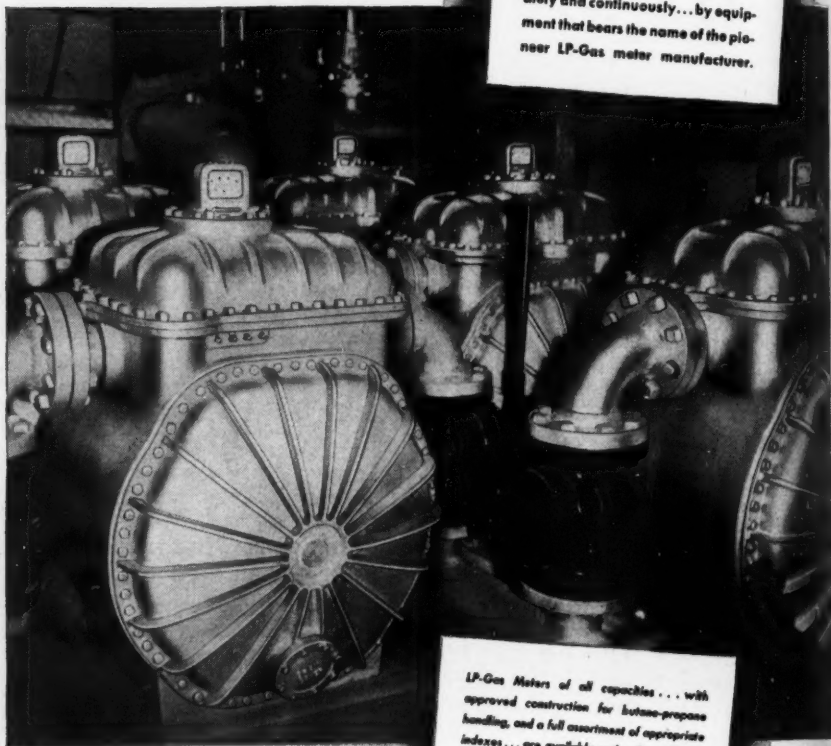
So—despite the fact that thousands of city residents who accept the wonders of pipe line gas service just as they do running water and the automobile, curiously asking, “What in the world is LP-Gas?”—to the deprived family, it is akin to Aladdin’s Lamp, and a shot gun would discourage anyone’s removing the equipment without consent. Letters of testimony and the low rate of repossessions prove the point!

If arresting the normal progress of LP-Gas installations will aid the Nation in its struggle to win the war we shall, as an industry and as an association, to a man cooperate to the fullest. But, be the “duration short or long, the usefulness, the earnest need for this modern liberator of toil and builder of health is so deeply entrenched in the lives of nearly two million consumers, and in the veins of the blanket distributors over the country, that it will not die from the weight of any restrictions, but will rise to full bloom at the first sign of dawn of a new day.

“By his deeds, let all men know him!”

A Battery Goes into Action at Camp Haan

In the propane plant at Camp Haan, in California, this battery of METRIC-AMERICAN Ironcase 500-B's is helping Uncle Sam keep both gas supply and accounts straight. • Each of these five busy meters (LP-Gas type) is handling better than its conservatively rated 10,540 cu. ft. per hr. capacity of propane, measured at 15 lbs. gage. The plant's propane delivery thus is measured accurately and continuously... by equipment that bears the name of the pioneer LP-Gas meter manufacturer.



LP-Gas Meters of all capacities... with approved construction for butane-propane handling, and a full assortment of appropriate indexes... are available under the AMERICAN and METRIC-AMERICAN brands. Helpful CATALOG LP-G-4 mailed you at your request.

AMERICAN METER COMPANY

INCORPORATED, ESTABLISHED 1886

GENERAL OFFICES • 60 EAST 42ND STREET, N.Y.

1713

MAINLY BEYOND THE MAINS

Manifesto

The future of the LP-Gas industry, as a supplier of essential fuel for other than war-time uses is in danger. This is no time for recriminations or for attempting to assign the blame for the industry's failure to take an earlier and a more realistic view of the emergency that confronts it. In this failure it has done no more and no less than have countless other industries — indeed, than has the Government, itself, as witnessed by the unforeseen debacle at Pearl Harbor and the widening spread of the Yellow Curse over the entire South Pacific.

Selfishness, internal confusion, lack of coordination, all have been hallmarks of our earlier defense and war efforts. If the industry has succumbed to the temptation to fall in with what appeared to be the spirit of the times, neither it nor its representatives who have labored diligently in its behalf are now to be criticized or censured.

But the new temper of the nation, and the real and impending peril that faces it, call for a new and a clear restatement of the industry's position in the whole and undivided interest of Victory. As publishers of an industry magazine we are fully aware

of the fact that if the industry falls, we too shall be numbered among the casualties. As Americans we are even more conscious of the inevitable truth that if National Survival fails, everything that we revere, respect or value will be forfeit. And life, itself, will no longer be worth the living.

To the end that the liquefied petroleum gas industry may be enabled to make its most effective contribution to that Victory, we set down the fundamental principles of industry attitude and industry procedure which we believe must prevail:

1. **Survival.** The individual interest and the individual fortune of every factor in the industry is secondary to the interest of National Victory. LP-Gas has a legitimate and an essential role to play in the production of war materials and in the maintenance of civilian health and morale. The industry asks no more than the opportunity to fulfill its obligations on these two great fronts.

2. **Expansion.** The industry recognizes that any expansion of its service not immediately consistent with the immediate advancement of the war program cannot be allowed and will not be requested.

3. **Service.** The industry ac-

cepts its obligation to the millions of American citizens who depend on either butane or propane for the maintenance of their health, strength and vitality; and it pledges itself to the continuance of that service so long as it does not impede the nation's progress toward the goal of a complete and speedy victory.

4. **Equipment.** All of the material and equipment resources of the industry, both in service and on inventory, are at the disposal of the nation. Consolidation of territories served, pooling of transportation facilities and the balancing of inventories of essential materials will be undertaken and speedily carried out when and if it is officially promulgated that such steps will be considered in the interest of National Defense.

5. **Cooperation.** The industry accepts the responsibility for making available through one central and authoritative agency, all of the essential facts on any phase of its operations that are necessary for the guidance of government in formulating a sound policy on its war time position. It subscribes to the proposition that unwarranted and uninvited intervention on the part of individuals, speaking only in their own behalf before government agencies, may be damaging to the industry, and prejudicial to its effective participation in the War effort.

6. **Compliance.** In full accord with the war aims of the United States, the industry pledges itself to full and immediate compliance with both the spirit and the letter of every order that is handed down for the furtherance of these aims. To the end that hastily drawn or poorly conceived mandates may be avoided, it postulates its democratic right to make known to government, in advance of the issuing of formal orders, the probable effect of such orders on the service to consumers of liquefied petroleum gas.

7. **Competition.** The industry will refrain from attempting to use the emergency to advance in any way its competitive position with respect to other fuels. It reserves the right, and commits itself to a policy of ruthless exposure and public denunciation of any industry that attempts, under the guise of patriotism, to use the war emergency for selfish or mendacious ends. It is a time for cooperation in all war effort.

Don't Chisel on Defense

Conservation order M-68-c has been officially interpreted by a member of the legal staff of the OPC and by J. S. Knowlson, Director of Industry Operations of the War Production Board as affecting the LP-Gas industry. This order in effect freezes all inventories in the industry with

the exception of gas and gas consuming appliances. It means that dealers cannot make any new installations unless they have them approved on an OPC Form PD-215, and this approval will only be given on jobs that are "necessary and appropriate in the public interest and to promote the war effort." Any operator who is not familiar with the text of this order should learn its contents; it may save him serious consequences later.

The latest information, at the time of going to press, indicates that this order, M-68-c, is to be amended and that the amended order will specifically **exclude** LP-Gas. Until the amended order is made effective, the provisions of the present one are in force, and they **do** include butane and propane operators.

A new conservation order specifically covering LP-Gas is being drafted and will be made effective in the very near future. At this writing a request from the industry that it be able to balance inventories and re-install repossessed equipment is under consideration. There is some likelihood that at least some of the industry's requests in this matter will receive favorable consideration.

It cannot be overemphasized that the amount of consideration that this industry is able to obtain depends to a large degree on exactly how the members of the industry conduct themselves

with respect to the wishes of the government agencies. We therefore feel it our duty to advise our readers that, should there be a time-lag between the issuing of the new M-68-c, excluding LP-Gas, and the new proposed order covering this fuel specifically, it behooves every factor in the industry to abide by the restrictions set upon them by the old M-68-c until the official new and specific LP-Gas order is issued.

This is no time for chiselers to attempt to gain a temporary advantage at the expense of the war emergency. Their efforts can result only in failure, and the bad will created will redound to the discredit of the entire industry.

Be Prepared

Inland American cities may not be bombed or attacked by either Japan or Germany. Possibly no LP-Gas dealers, distributors or producers, on this continent will suffer from direct war onslaught. We hope not.

Nevertheless, this is a good time to check your fire-fighting equipment and even to help organize auxiliary fire-fighting forces to aid regular fire units and that could be called upon in emergencies which might involve your plants.

Preparedness is such a large part of prevention of costly catastrophies that no industry can afford to ignore it.

Eastern Shore Gas Corp. Uses Three Distribution Methods

By ELLIOTT TAYLOR

THE distribution of both butane and propane under a variety of conditions has led to a wide and diversified operating experience in the history of the Eastern Shore Gas Corp., of Snow Hill, Md. Through its subsidiaries the Eastern Shore Gas Co. and the Eastern Shore Gas Co. of Virginia, Inc., it distributes butane-air through piped gas systems in a number of towns, undiluted propane in the same manner in others, and through its own selling organization, and that of a large number of dealers, it sells metered tank gas service to thousands of other homes beyond reach of existing gas mains.

Distribution Started in 1931

The underground distribution system of Shorgas Service, as it is called, was started in 1931 with public utility franchises in Pocomoke City, Snow Hill, Berlin and Ocean City, Md. and in Chincoteague, Va. At the present time all of the piped gas towns are being served undiluted propane with the exception of Pocomoke City and a portion of Ocean City, where butane-air is the fuel distributed.

The distribution system in the town of Ocean City serves customers in one section of the town with propane gas from a propane holder, and the balance of the distribution system serves 550 B.t.u. butane-air gas from another. The

valves in the distribution system separate the limits of flow of the two gases. This situation came about through the additional load on the original butane-air plant indicating the necessity for early construction of an additional complete unit. Analysis of the costs showed that a smaller additional investment would be required to build a propane holder and change over a section of the existing distribution system. As the load increases beyond the capacity of the butane-air lines to handle it, new sections of the town are valved off from the butane-air mixing plant and straight propane introduced after the necessary adjustment of appliances has been completed.

The company is now in the process of converting an additional section of the distribution system having a peak load demand of nearly 1,000,000 cu. ft. a month to propane. This enables the full utilization of the butane-air system without any additional investment in plant facilities, at the same time making provision for all load increases by increasing the use of propane to replace sections of the old butane-air system.

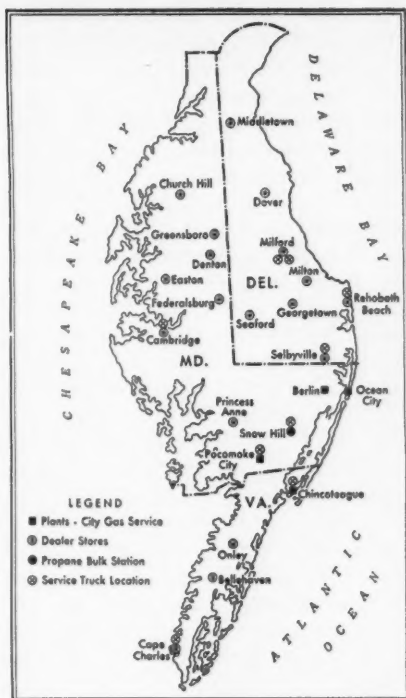
In addition to the gas towns which constituted the original sys-

tem, Shorgas now sells propane on a single drum, metered system direct to homes; and through an organization of merchandise dealers they have extended Shorgas facilities to thousands of families over the entire Delmarva Peninsula—the flat and fertile strip of land that lies between the Chesapeake and Delaware bays.

All of the meters are indexed to read in Shorgas Units, a unit being the gas equivalent of $\frac{1}{2}$ -lb. of propane. The published rate schedule shows that gas rates vary with usage from 6 cents per unit for the first bracket down to $1\frac{3}{4}$ cents where a gas range and an automatic appliance are both used. The average consumption per residence is 50 units per month at a rate of between 4 cents and $4\frac{1}{2}$ cents per unit, which, of course, would be equivalent to from 8 cents to 9 cents per lb. Meters are read and cylinders refilled from the tank truck every 30 days, the driver rendering the monthly bill and collecting for the gas used at the time of reading the meter.

Two bulk stations, one at Snow Hill, Md. and the other at Dover, Del., supply all of the propane for the entire territory. The Snow Hill station has one 15,000-gal. holder; and at the Dover plant there are two storage tanks of 18,000 gals. each.

Six tank trucks of 1000-gal. capacity each, and 15 service trucks cover the entire peninsula. In addition to their regular trips over the territory servicing customers' individual storage drums, the tank trucks deliver gas to the propane storage and distribution centers



Territory served by Eastern Shore Gas Corp., of Snow Hill, Md.

that supply piped gas to Berlin, Ocean City and Chincoteague City.

The storage tank in the Snow Hill bulk plant serves in a dual capacity—that of holder for the liquid propane that is transferred to tank truck and cylinders, and also as point of origin for the piped gas that serves several hundred meters in the community. Undiluted propane vapor is drawn from the top of the tank, reduced in pressure through two stages of regulators, and sent out over the five miles of mains. The first stage of regulation cuts the pressure from holder pressure to 25 lbs. per sq.

in.; the second reduces this to 5 lbs., at which pressure it goes into the lines. House regulators installed on the job cut the final pressure to the conventional 11 in. of water column. At both Dover and Snow Hill, liquid pumps are used to fill cylinders and tank trucks; Brunner compressors unload the tank cars.

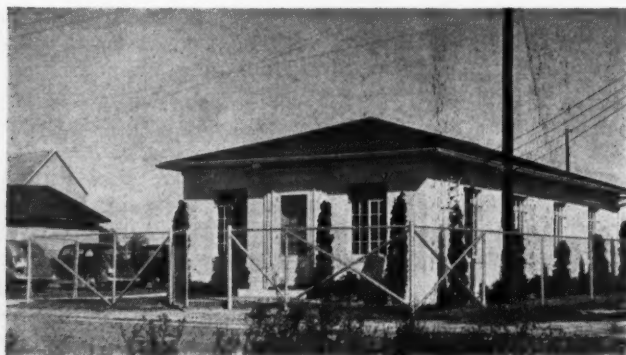
The dealer contract is unusual in that the dealers who represent Shorgas in selling new installations make their profit only on the sale of appliances. Each dealer pays the company \$9.75 per installation which he collects from the new user of gas. The Eastern Shore Gas Corporation, in turn, does not merchandise any appliances in territories assigned to Shorgas dealers. In towns where piped gas is supplied, however, gas ranges, water heaters, refrigerators, space heaters and other commercial and domestic appliances are sold direct to the consumer.

An analysis of the comparative costs and operating income on piped gas systems, as compared to individual tanks supplying metered service at the customer's premises, has been made by W. H. Wulf, pres-

ident of the Eastern Shore Gas Corp. The figures show that the average investment per customer in piped gas communities is \$85, while that of tank gas users is about \$60 per household served. Net operating income per installation, however, is about the same for each group of accounts. Depreciation is set up for accounting purposes on the basis of complete amortization over a 10-year period for tank installations, and on the life of the franchise for distribution systems.

Since it is obvious that a 10-year write-off on propane cylinders and equipment represents a liberal allowance for amortization, it would appear from these records that under nearly identical conditions, this type of distribution of gas is the more profitable to the operator.

Defense housing has not entered to any considerable extent into the Shorgas picture, although a small contract has been signed to deliver propane to houses being built for the occupancy of U. S. Army officers at Ft. duPont. The contract, which is at standard published rates, calls for the delivery of undiluted propane gas through a master meter.



▲
Home office at Snow Hill, Md., of the Eastern Shore Gas Corp.
▼

Accuracy in Keeping Records Builds Customer Goodwill

By VICTOR T. MAVITY

President, Southern Liquid Gas Co., Dothan, Alabama

SOUTHERN Liquid Gas Co. began operations in August, 1932, and has pioneered LP-Gas service in southern Alabama, western Florida, and southwestern Georgia. The first two cars of gas purchased were butane-propane mixtures, but the company changed to straight propane and has served nothing but undiluted propane ever since.

We of this company have a sort of motto or policy to the effect that "it costs but a little bit more to go first class," and this motto has helped us to refrain from handling any but the highest grade of appliances, and to get and use the best equipment that can be obtained, for optimum service to our customers.

Reliability First

Southern Liquid Gas Co. realizes, more than any other single fact, the need for absolute accuracy of all its records, and for fairness in its dealings. In a competi-

tive age the peace of mind of the customer and the integrity of the dealer is as necessary to good will and progress as is the excellence of the product which brings together the dealer and the customer. While we feel that all our customers are pleased with propane gas service—daily testimonials prove this—we are also mindful of a question common to all users of gas of any kind.

The Consumer's Question

That question is: "How do I, the consumer, know *for sure* how much gas I use; how do I know it is measured correctly?" That is a reasonable question and the consumer is entitled to a clear and comprehensive answer. In our plant in Dothan every pound of gas is weighed, and the system of weighing and checking is such that an undisclosed error* will not occur more than once in every hundred thousand cylinders handled, if once at all.

Human minds and hands alone could not be that accurate. Only with the aid of precision machines and instruments of highest quality can such accurate results be had.

* By "undisclosed error" is meant an error that is not discovered and corrected before it reaches the customer.



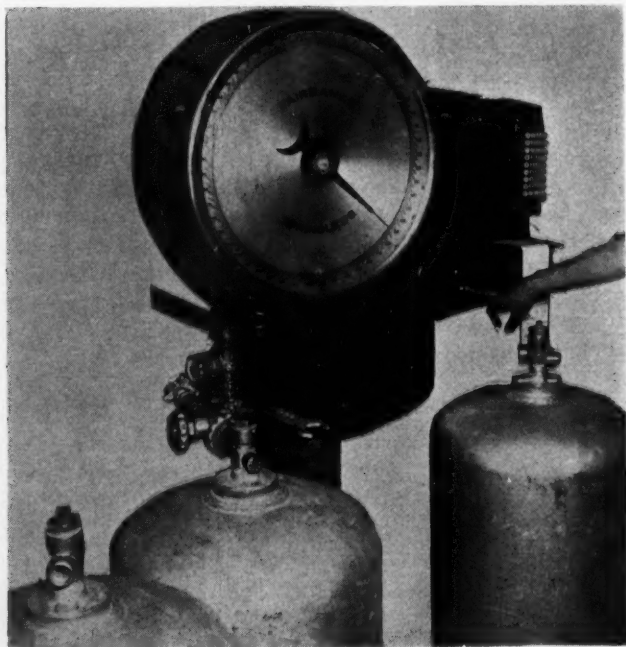
V. T. MAVITY

The gas bill that the consumer gets is the product of three accurate machines, supported by three independent checks. First, each cylinder, which bears its individual number stamped into the metal, is weighed on the automatic printing scale. The cylinder number is put into the automatic scale by means of the keyboard. After this number and the cylinder's tare, or empty, weight is recorded, while on the scale platform the cylinder is filled with pure liquid propane.

When the cylinder is full (which is indicated by the dial) the filling hose is disconnected, and by pressing the print button, both cylinder number and complete weight is printed on the small record card which has been inserted into the

machine. (See Fig. 1.) This almost "human" machine meanwhile prints a duplicate record on a paper tape. The filling card, which declares the amount of gas in the cylinder, is then removed from the machine and inserted into the cylinder cap, which is screwed onto the cylinder *immediately*. This is done *before* a second cylinder is moved in to be filled, thus removing all likelihood of mixing cylinders, cylinder caps, or weight cards.

The card remains with the cylinder until delivered to a customer. No one knows who will receive the cylinder. The cylinder may go to TVA at Muscle Shoals, or it might go to a church in Florida. But wherever it goes, the card showing its weight and number remains



▲
Fig. 1. Recording the weight and cylinder number by pushing a button.
▼

with it until the delivery is made.

Our delivery department is in charge of Charles McDugald, who handles the addressograph machine, addressing delivery cards at the rate of 90 per minute. This machine never forgets a customer, nor his address, nor how many cylinders he has. These delivery cards bear the customer's name, address, and account number, and there is a separate card for each of his cylinders. The delivery schedule is so arranged that each customer is served at about the same time each month. At the home of the first customer on the route, the delivery man takes a full cylinder from the truck to the gas installation, unscrews the cylinder cap, removes

the small filling record card, and (this is check No. 1) compares the number on the card with the actual cylinder number. (In case the numbers should not agree, he would reinsert the card and return the cylinder to the truck and not use it until it had been re-weighed.)

With filling card and cylinder in agreement, he then fastens the filling card onto the large delivery card (which bears the customer's name, address, etc.) by means of a pocket stapling device, and immediately puts the delivery card into the cylinder cap, Fig 2, and screws the cap onto the cylinder which he removes from the customer's house. This card remains with the cylinder the customer has been



Fig. 2. Inserting in cylinder cap the customer's delivery card.

SOUTHERN LIQUID GAS			DELIVERED		
REMOVED			GROSS	TARE	CYLINDER NO.
GROSS	TARE	ENTERED	193 1/2	93	C 009
1941 JUL 15 PM 5:15					
117 1/2			95 1/2	C 1516	
MRS. LUCILLE HAWTHORNE 5 ASHFORD, ALA.			NET 100 1/2 JULY REGULAR		

Delivered by Chas Date 14

SOUTHERN LIQUID GAS			DELIVERED		
REMOVED			GROSS	TARE	CYLINDER NO.
GROSS	TARE	ENTERED	198 1/2	95 1/2	100
1941 JUL 15 PM 5:15					
097 3/4			90 3/4	C 1682	
MRS. LUCILLE HAWTHORNE 5			NET 100 JULY REGULAR		

Delivered by Chas Date 14

PLEASE REMIT TO: SOUTHERN LIQUID GAS COMPANY, DOTHAN, ALABAMA

STATEMENT OF GAS SERVICE

POUNDS GAS REMOVED	POUNDS GAS DELIVERED	POUNDS GAS TO PAY FOR	AMOUNT	GAS APPEARS	PAY TOTAL IN THIS COLUMN	THE TOTAL MERCHANDISE BALANCE IS SHOWN AT BOTTOM OF THIS COLUMN FOR YOUR INFORMATION	FROM
28.25	200.50	172.25	10.81		10.81		JUNE 9
							TO
					10.81		JUL 14 41

FREE GAS 4 LB.

MRS. LUCILLE HAWTHORNE 5
ASHFORD, ALA.

using during the past month and is not touched again until it reaches the automatic printing scale at our plant.

At the plant the incoming cylinder is placed on the weighing platform of the automatic scale, the cap is unscrewed, the delivery card removed and inserted into the wide scale slot, and, after entering the cylinder number and tare weight the same as when it was filled, the number and weight are printed simultaneously on the card and paper tape, by pushing the print button.

The finished card is then removed from the scale slot. *Note that in all these operations there is not possible a single adjustment of weights or scale beams.* The entire mechanism is sealed beyond the reach of the operator. He can only push buttons, the complete weighing process being automatic.

The Final Check

The finished card then goes to the billing department. Here is the *second check*, which is done by comparing numbers on delivery cards from incoming cylinders with actual cylinder numbers delivered to the same customer the previous month. If these numbers do not check, then no bill is made until the correct cylinder is found. Correction of such an error, which rarely occurs, is facilitated by the duplicate record on the paper tape.

The *third check* is also made at this point and consists of an inde-

pendent addition of gross and tare weights from all the cards, which must check with the additions of the billing machine, mentioned before.

The billing machine is a combination of a typewriter and eight adding machines, all built into one, and operated electrically. This machine makes customer's ledger sheet and bill at the same time from data on the delivery card. In Fig. 3 are shown cards covering pick-ups and deliveries for a customer on a given date and a ledger sheet, the latter made out in quadruplicate. The original goes to the customer; the duplicate and triplicate are for office records, and the fourth copy, bearing the additional words, "Delinquent Notice," is mailed out after 10 days from the first billing. The "44 lbs. free gas" is a customer credit if the current bill is paid within 15 days from date of first statement and constitutes the company's policy of giving the year-round customers that gas during the previous month which exceeded 106 lbs. and up to 150 lbs.

The amount of the bill and the dates are subject to the same checks for errors as may be found in any good accounting system, and if an error should occur it is readily found and corrected.

We, of course, do not pretend that errors are *never* made, for all who work in our organization are only human, therefore we are all subject to the old "human element." By using these three machines and the three checks described, however, the undisclosed errors in cylinder numbers and weights are, you might say, simply non-existent.

Fig. 3 (opposite page). Forms used for picking up and delivering cylinders, and ledger sheet with bill superimposed, showing items from the delivery cards.

Eastern Section Told "Keep up Steam for the Future"



THE EASTERN SECTION
OF
LIQUEFIED PETROLEUM GAS ASSOCIATION
HOTEL PENNSYLVANIA, NEW YORK, JAN. 22-23, 1942

PETER A. ANDERSON, of Utilities Distributors, Inc., Portland, Me., was elected Chairman of the Eastern Section of the Liquefied Petroleum Gas Association for the 1942 term at a meeting of that organization held in the Hotel Pennsylvania, New York City, Jan. 22-23. He succeeds Plumer Pope.



P. A. ANDERSON

Other officers elected at the meeting were S. L. Glickman, Natural Gas Co. of Pennsylvania, Philadelphia, first vice-chairman, succeeding Mr. Anderson in that capacity; R. E. Forsberg, Country Home Gas Service, Inc., Suffern, N. Y., second vice-president, succeeding Mr. Glick-

man; and R. E. Kiel, Pressed Steel Tank Co., Milwaukee, secretary, succeeding R. Adam Johnstone.

Industry speakers at the meeting included: F. B. Boice, Shell Oil Co., Inc., Chicago, who spoke on "Our Gas Load After the War"; Mark Anton, Suburban Gas Co., Livingston, N. J., who titled his speech, "Shall We 'SOB' OR SOC'?" and E. Carl Sorby, Geo. D. Roper Corp., and chairman, L. P. G. A. Advertising and Sales Promotion Committee, whose subject was "Keep Up Steam for the Future."

An open forum on "The Present Situation in the LP-Gas Industry" was held during the second day of the meeting and a technicolor motion picture was presented by A. A. Michaud, Dugas Engineering Corp., which showed the "Control and Extinguishment of Butane and Propane Fires."

SELLING

How's Your System?

If circumstances restrict a dealer's selling activities, what shall he do with his time?

Well, there are several ways in which he can constructively fortify his business for "the duration" and better prepare for the certain boom that will come with war's end.

One is to organize his system—to formulate a cost accounting plan that is best adapted to his particular company in its particular field. Too often, dealers operate too much on speculation. Instead, there should not be a single function performed inside or outside the office that is not recorded in the form of overhead or direct service. Ringing up a sale on the cash register costs money. The cash register, itself, is part of the capital investment; interest on any unpaid balance must be reckoned, and the floor space it occupies, preventing the display of one more appliance, is an expense. Salaries for the bookkeeper and janitor and office boy and stenographer must come out of profits on sales just as certainly as do installation costs and warehouse rent and delivery truck expense and servicemen's wages.

Advertising finds no way of paying for itself except as profit margins are provided upon the added sales that advertising creates.

And so on in every department.

Profit is the magic word, but competition sometimes tempts one to reduce prices until profits dwindle. Well concealed overhead—or more often, well *ignored* overhead—is a subtle thing and where an accounting system is not scientifically set up many an item of expense escapes notice.

Now is a good time to plug up leaks. It is a good time to correlate and coordinate all company effort; to establish a system that makes accurate provision for every outlay; that provides a uniform basis for figuring real costs and legitimate profit; that enables a dealer, looking at his books, to truly know where he stands.

With such a foundation he knows how large a stock he can carry, how much salary allowance can be made for every department, how much rent he can afford; how much additional capital, if any, is justified for expansion.

And this is a good time to put in such a system. Analyze and record every step that is taken in your business. Keep separate records for every department. Figure your investment, your interest charges, your insurance; determine your average "non-accounted for" losses; add up your salaries; put in your light and phone bill, your truck operation outlay—and everything else. Add them all up and you have your overall cost. Average your overall cost of doing busi-

ness against your volume of business and, lo and behold, you suddenly know what overhead percentage must be added to individual sales to clear you! And thus you arrive at the point when you can intelligently estimate how much profit you can add, yet hold your own with competition.

A New Sales Approach

This nation at war, with Pacific possessions attacked and the mainland threatened with air raids, is a new sensation for Americans.

We cannot immediately adjust ourselves to a full appreciation of the dangers that beset us now nor the sacrifices which may later be enforced upon us.

We have been a wasteful nation in squandering recklessly our natural resources—partly because supply has been abundant and partly because we have set high standards of living conveniences.

The chief aim and ambition of American business up to the present has been, "Sell more goods!" This has been as true of public utilities as of private enterprises. It has been the slogan of the liquefied petroleum gas industry.

But conditions are changed. Demands exceed supply, due to the diverting of vital materials, such as steel, into war essentials. And now dealers all over the country are endeavoring to find ways to limit sales without undermining their own business structures and without discouraging the public in its approval of LP-Gases and appliances for the innumerable uses to which they are now so widely adapted.

It is interesting to compare our past attitude to that of the gas industry in England which, in spite of the wide destruction that aerial bombing has brought, gives its customers a highly commendable service. And in the English policy and the English spirit are lessons for us to ponder.

Under the direction of the Ministry of Food, English gas companies are publicizing ways in which consumers can *use less gas* and yet provide the medium for necessary household application. To that end, widespread campaigns have been instituted among dealers and the public, itself, to educate the individual in ways to prepare balanced meals with economy of both food and gas. How to cook in slow ovens; how to get the greatest service from top burners; what recipes can be best adapted to limited gas consumption—these and numerous other suggestions are being displayed in publications, on posters, in dealer showrooms, and "food advice centers," all ending in the cry to "use less gas and help to smash Hitler!" Who, in the United States, ever thought the time would come when a salesman would urge a customer not to buy?

It is a new viewpoint for Americans to consider—and one they may have to consider—advising customers to use less gas; to eat different foods because they cook quicker; to conserve vital resources. In the end (who can say?), it may give Americans a new pattern of life—a method of daily living that is based upon a saner application of possessions, and an entirely different approach to selling!

DOTTED LINE ROSCOE ... by Bob Crosby



The sales department's savin' tires!

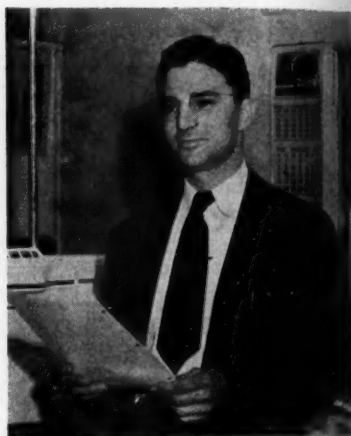
Dealer Association Shown Ways To Broaden Scope



L. ABRAMSON, JR.

MEMBERS of the Louisiana Butane Dealers Association met in Baton Rouge, La., Jan. 16 to select new organization leaders for 1942 and to discuss current industry problems. The election of officers by the executive board carried Quentin Jones, Butane Gas Co., Houma, La., into the presidency of the Association, succeeding Louis Abramson, Jr. J. J. Oden, Woodsworth, was named vice president; C. E. Lawrence, Leesville, was elected treasurer, and Louis Abramson Jr., New Orleans, became the new secretary. L. C. Parker, Baton Rouge, was re-elected executive secretary and attorney for the Association.

The only paper scheduled for the meeting constituted an analysis of existing influences and brought its urgent plea for greater organizational cooperation and the "ordering up" of individual business so that the problems of the emergency may be adequately met and the opportunities after the war will find the industry ready to forge ahead. It was presented by W. P. Thomas, Director of the Gas Division, Louisiana Public Service Commission,



QUENTIN JONES

and was entitled, "Business Management of Butane Dealers."

After summarizing the developments of LP-Gas in its domestic, commercial and industrial applications, Mr. Thomas asked Association members, "Have you improved your business methods and your accounting systems in any way commensurate with the expansion of your business along the lines of merchandising and sales?"

"I would say that the greatest need is the improvement of your business administration. The management of most of your enterprises is the weakest link in your dealer set up. You have all laid a great deal of stress on the selling program without keeping the ac-



L. C. PARKER

counting end thoroughly in mind."

After insisting that the industry must always hold the public trust, he said:

"These meetings should result in a better conduct of your affairs if you

will take an inventory of your individual business, be conscious of its weaknesses and shortcomings, then discuss them with your associated dealers so as to crystallize a method of businesslike procedure to cover the operation of an industry rather than based on the conduct of a small retail sales store. My recommendation would be that your Association become departmentalized, with a committee appointed to draft a sales program. You should have one section of your Association work out the technical problems, which include the specifications and properties of the fuel, the equipment standards, construction codes, etc. You should have a section delegated to work out a standard system of accounting and record keeping, with other definite divisions to cover the problems of the other respective departments of your business.

"The problems of today, where all business transactions are more-or-less connected with the program for war and civilian defense, make it more imperative that you have

records and facts relative to your operations, relative to your demands and regarding the future of your entire business. Get your house in order. Clean up your office methods and records.

"I extend my most sincere wish for the organization of your operations in this industry to such a degree that you will be able to render a service to the civilian public, of such standards as to build up its war-time morale, and to be able to assist our Government, the Army and the Navy in whatever capacity possible to bring victory in the shortest possible time and with the greatest decision. Your stable continuance of business, with an ever-conscious attitude for improvement of service, even with sacrifice, will greatly strengthen our position for meeting the LP-Gas demand after victory."



Merriel Fliedner Joins Staff Of Mutual Liquid Gas Co.

Mutual Liquid Gas Co., of Inglewood, Calif., recently added Merriel Fliedner to its organization. Mr. Fliedner will be active in all divisions of the company, but at present will spend his time in the office.

Mr. Fliedner has known many members of the LP-Gas industry on the Pacific Coast in past years and hopes to renew his acquaintance through this new connection.



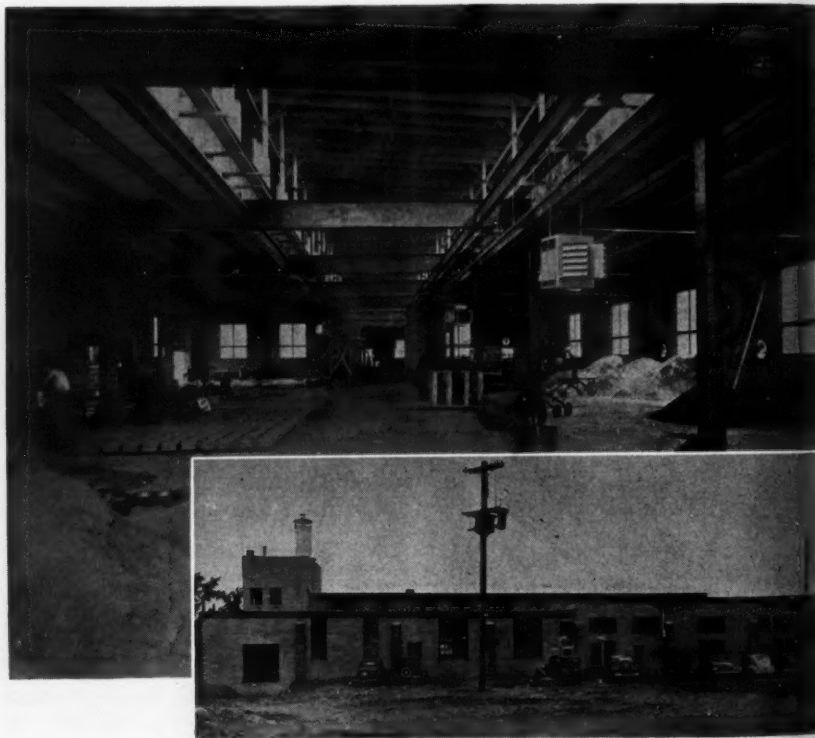
W. P. THOMAS

Minnesota Defense Foundry Operates on Butane

NORTHWEST Hydrogas Co., Minneapolis, Minn., of which Charles D. Bubar is president, has installed two 1114-gal. butane Hydrogas systems equipped with hot water vaporizers at the new Paul Pufahl & Son Foundry Co., which is now engaged in defense

work beyond the city gas lines of St. Paul.

The new building is 154 ft. by 95 ft., with 14 x 27 ft. ceiling. The main foundry room is heated with four 200,000 B.t.u. unit heaters. The office, pattern room, compressor room, and the men's shower



Interior and exterior views of the Paul Pufahl & Son Foundry Co., St. Paul, in which butane plays an important role.

room are heated with a 200,000 B.t.u. mechanical forced air furnace. A 55-gal. automatic water heater provides water for the showers.

The foundry has one 500,000 B.t.u. and one 250,000 B.t.u. core baking ovens. There is a proportional air mixer burner for heating and drying both large and small ladels for pouring metal, and numerous small torch burners for drying oil or cores.

The foundry, which employs 60 men, operates seven days a week, 24 hours a day. The core baking

ovens operate approximately 19 hours out of each 24-hour period. A recent temperature of 22° below zero did not alter the regular production schedule.

Paul Pufhal, president of the company, who has been in the foundry business for almost 50 years says, "We are making complicated castings which require intricate core work, so liquified petroleum gas was chosen for the core baking ovens because with it, easy and accurate temperature control is possible."

Cairo, Ill., Now Uses Butane-Air

RESIDENTS of Cairo, Illinois, are becoming well familiarized with the use of butane gas since Dec. 15, when the entire municipal gas system was converted over to butane gas.

The change was made in the interest of economy, according to the Illinois Power Co., operators of the gas system, who found the use of LP-Gas considerably more economical from all standpoints, after surveying total gas usage in the city. Prior to butane conversion, the city of Cairo and surrounding territory were using only 90,000 cu. ft. of gas per day, with about 1200 customers on the books—1100 of which were domestic accounts. This light load, plus labor cost, made use of the former oil-gas system wasteful and unsatisfactory from all phases. Therefore, the power company cir-

cularized all users, asking for an opinion on the case, and received full approval for going ahead.

For three weeks before the butane gas (Philgas) began arriving in tank cars from Oklahoma, a conversion crew worked three weeks on ranges, water heaters, floor furnaces, and other appliances, converting them for the use of LP-Gas. The new butane-air plant serves a 565 B.t.u. gas and has proven satisfactory for all uses. Only new equipment required was a 15,000-gal. liquefied gas storage tank and new compressors at pumps to transfer the gas from tank cars to the storage tank. It is then mixed with air and stored in a 100,000 cu. ft. low pressure gas holder already available. One room of the old gas building is being used for compressors and pumps, located just under the meter shop.

Gas rates may possibly be lowered, according to the Illinois Power Co., but in any event there will be no advance in price.

THE BOTTLED GAS MANUAL

Chapter 9

Testing for Leaks and Adjusting Atmospheric, or Bunsen, Burners

TONIGHT we first are going to discuss testing the work which we have already done. If we have been careful the chances are slim that we will find a leak unless there is a defective fitting, but we cannot afford to take chances. Our lines must be pressure tested.

Things That We Shall Need for Making a Test. We shall need the following articles for making a pressure test: 1 water manometer or testing gage reading in inches of water column; 1 cake of soap that will lather well; 1 cheap paint or shaving brush; 1 old tin cup or other container in which to mix soapy water; 1 wiping rag; $\frac{1}{2}$ cup of water. If the temperature is below freezing, and we have joints to test under such conditions we will need some linseed oil to use in place of the soapy water.

Things to Do Before Making the Test. Before making our test we must first go over the entire system and see that all appliance burner valves are closed. We must also shut off all pilot lights. Next we should test the manometer or pressure gage to make sure that there are no leaks in it. This is done by blowing into the rubber tube connected to the manometer until we have a pressure of 11 in. of water column. Next we should squeeze the end of the tubing to-

gether so that no air can escape. This may be done by folding the tubing back on itself and holding it with our fingers, or we may use an old fashioned spring type clothes pin. Pressure should be allowed to remain upon the manometer for about five minutes. If no drop in pressure shows up we know that our gage is in proper working condition.

Making the Test. The first step is to attach the manometer or testing gage to the system. This is usually done by removing an appliance burner and forcing the rubber tube on the end of the hood or tube through which the gas enters the burner. It is best to leave the valve to this connection closed until after pressure comes onto the system. This is to avoid the shock of the initial pressure coming onto the manometer and blowing the water out of it, or exerting an undue strain on the testing gage.

The next step is to allow pressure to come onto the system by gradually opening the cylinder valves. It is now time to allow pressure to come onto the manom-

- The Bottled Gas Manual series by C. C. Turner, started in the July, 1941, issue of BUTANE-PROPANE News and will continue to be published monthly in chapter form until completed. This series constitutes a valuable text book and field manual that should be invaluable to everyone in the liquefied petroleum gas industry.—Editor.

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eter by gradually opening the appliance valve to which it is connected. Probably the reading will be somewhere in the vicinity of 12 in. of water column. The cylinder valves should now be closed again. By doing this pressure is locked into the system between the appliance valves and the cylinder valves. It might be well for us to take a look at the testing gage at this time. If any drop in pressure has occurred we know that there is a leak of serious proportions.

How to Obtain Equal Pressure

Let us for a moment turn back to Chapter 5, Fig. 5. If we allow pressure to come onto the system quickly there is a chance that in the chamber of the regulator and the connected pipe lines we may have a pressure in excess of that for which spring "S" is set. This has caused valve "h" to close, and between this valve and cylinder valve "V" we have a considerable amount of high pressure gas trapped which might slowly leak by valve "h" as a small leak if the system allowed gas to escape, and the rate of leakage by valve "h" might be enough to temporarily counteract the leakage in the system and fool us in the manometer or testing gage reading. For this reason the next step is to open one of the appliance valves until the manometer reading drops to 8 in. of water column. Then close appliance valve. We now know that valve "h" has opened and that we have equal pressure on the entire system from the cylinder valve to all of the appliance valves.

If we are using a testing gage

we should tap it lightly at this point to make sure that the needle is not being held in a false position by internal friction. We should now allow the system to remain under pressure and undisturbed for five minutes, after which we must tap the testing gage again. If there is no change in reading we know that our lines are tight. If the pressure reading drops we know that we have a leak somewhere in the system.

Even a test of this nature is not conclusive evidence that our pipe lines are entirely tight if we have long lengths of line which are exposed to higher temperatures than those which exist at the cylinders. There might be a building up of pressure within the lines due to expansion which might offset the drop which would otherwise be caused by a small leak. The best way of making sure that this condition does not exist is to allow the full pressure to come onto the system again after we have made the manometer or testing gage test, and go over each join with soapy water. Don't have the water heavy with lather for this test, but just soapy enough so that if there is any leak soap bubbles will be blown.

Where to Look for Leaks That Defy Detection. If we have been careful with our work and no leak is discovered, yet the manometer indicates there is one, it is quite likely that the leak is in some place other than our piping. Here are a few places which should be checked in this instance: 1—Check the tubing connected to the manometer or pressure gage; 2—check the joint where the hood screws onto the

appliance valve; 3—check all joints in the appliances; 4—check the pressure relief valve on the regulator; 5—check the regulator and manifold body; 6—check each fitting for flaws; 7—check the gage and gage lines used in connection with an automatic manifold; 8—check all valves for leakage by them or around the stem.

Repairing the Leaks. In the case of ground joints, flare or sleeve fittings, it is quite possible that we have not drawn them up sufficiently tight, in which case it is satisfactory to draw them up more tightly and again test them. If the joint is pipe threaded, the only safe way is to take it apart, clean the threads, "re-dope" it, and put it back together again. *Don't* try slapping a little "dope" on the outside and tightening the joint up another turn. Leaks repaired in this way are almost certain to develop again.

Defective fittings should be entirely discarded. Appliance valves are usually of the tapered and ground type. Leaks are usually caused by the lubricant upon the tapered portions having dried out. The remedy is to take the valve apart, thoroughly clean it, and apply an approved gas cock lubricant sparingly.

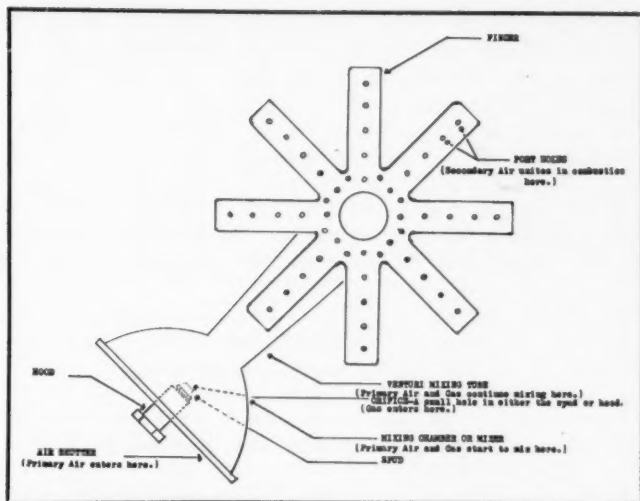
Setting the Pressure. The next step is to set the proper pressure for the operation of the entire system. The testing gage is left connected into the system while we do this. All appliance burners should be turned on and lighted while the adjustment is made. If we have used the right regulator and the proper size of pipe lines, the pres-

sure should not drop below 10.45 in. of water column when all burners are in operation; it should be at 11 in. of water column when one burner is in operation, and should not show a "locked-in" pressure above 13 in. of water column when all appliance burners are shut off. Adjustment of pressure should be made to 10.45 in. of water column when all burners are in operation. This adjustment of pressure is accomplished at the regulator. Turning to Chapter 5, Fig. 5 again, over adjusting screw "A" will be found a protective cap which must be removed while this adjustment is made. To raise the line pressure, turn adjusting screw "A" in a clockwise direction, thereby increasing the force exerted by spring "S". To decrease the line pressure turn adjusting screw "A" in a counter-clockwise direction.

Things We Must Know Before Adjusting the Burners. We will not go into the matter of various types of burners at this time, for later we will devote an entire chapter to this subject. It is necessary, however, for us to know what the various parts of a burner are called in order that we may discuss them intelligently, and for this purpose a sketch of the common star burner such as shown in Fig. 1 will suit our needs.

Gas enters the burner through a tiny hole known as the *orifice*. This orifice may be in a small brass fitting known as a *spud*, or it may be drilled directly in the *hood*. Primary air enters the burner through an *air shutter* located on the *mixer* or *mixing chamber*. This shutter is usually located back of the orifice

Fig. 1. Descriptive sketch of the various parts of an atmospheric star burner.



position in the burner. In the mixer or mixing chamber primary air and gas start to mix. This process is continued in the *mixing tube* which is known as a *venturi* if it is of the tapered type. From the mixing tube the gas-air mixture enters the *burner head*, which, in the case of a star burner is that portion of the burner made up of the eight *fingers*. It emerges from the burner head through *port holes*, at which point it unites with secondary air and combustion takes place.

Returning to Chapter 1, Table 1, "Properties of Propane and Propylene," it will be noted that the limits of inflammability run from 2.3% gas and 97.7% air up to 9.5% gas and 90.5% air, and somewhere in this range, preferably around 4.71% gas and 95.29% air, is the ideal combustion point. It would require laboratory equipment to establish a mixture accu-

ately, and we must learn to use our senses in accomplishing this. Until we discuss burner design and proportions in future chapters we have to take the manufacturer's word that he has built them correctly and provided us with the proper size of orifices and ports. Therefore, for the present we must make our burner adjustments only by changing the amount of primary air admitted to the burner, and judge the correctness of our adjustments by the appearance and the performance of the flame.

Characteristics of a Propane Flame. In adjusting a propane flame we must rely upon our senses of sight and smell. Many people think that the hottest point is right in the body of the flame; this is not so. A properly adjusted flame is made up of three distinct parts and colors. The main part of the flame is a distinct light, or greenish, blue. At the point of the

main part of the flame is a small and very dark blue section. Surrounding the upper portion of the main part of the flame and the dark blue section is a purplish haze. The hottest part of the flame is directly in line with its center at the junction of the dark blue and purplish haze sections. This is illustrated in Fig. 2, and the flame should be

adjusted so as to appear somewhat as shown.

It should be held in mind that on a range the top burner flames are to operate with a cooking vessel over them, so after adjustment has been made a teakettle should be placed over the flame and the condition of the flame then observed. The individual flames

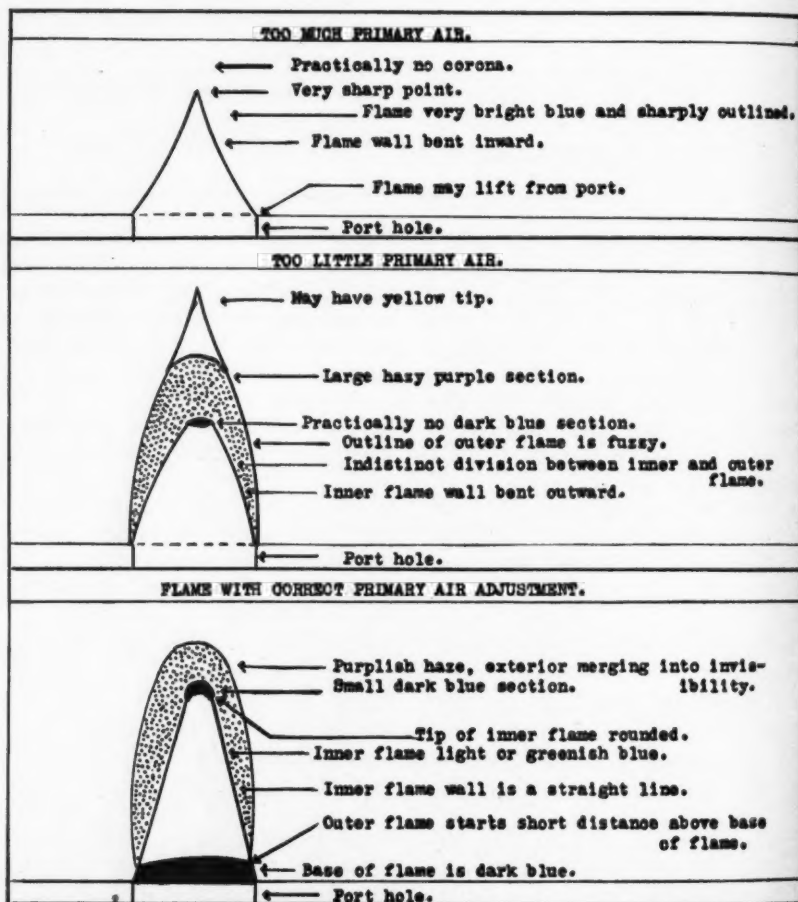


Fig. 2. Illustrations of various propane flame characteristics of atmospheric burners.

should then merge into each other, and the composite flame should become somewhat longer and curve to follow the bottom contour of the cooking vessel. It is wasteful to have a flame which comes up around the sides of the cooking vessel, and if this happens the flame should be cut down by using a smaller orifice.

When the cooking vessel is over the flame the odor of the burnt gases should be observed. If there is a stinging sensation to the nose and eyes it is a sure sign that combustion is incomplete and aldehydes are being produced. This is usually caused by insufficient secondary air which causes some of the gas to escape from the ports and later burn over the flame from some of the other ports. This condition can usually be remedied by either lowering the burner or raising the cooking vessel. If neither of these things can easily be done it is suggested that the burner input be decreased by using a smaller orifice.

A final test is to take a shallow pan of water and place it over the burner. When the water in the pan boils the outline of the flame will be seen in the boiling water, and the best adjustment of primary air is at the point where the water boils most furiously.

These three tests are known as the "Eye, Nose, and Water Tests," and each top burner should be subjected to them in order to make sure that the best possible results are being obtained.

Flash Tube Lighters. Most propane ranges are today equipped with flash tube lighters for the

top burners. It is not generally realized, but proper adjustment of a propane burner has much to do with satisfactory operation of lighters of this type. A study of Fig. 3 will show why this is so. Gas enters the flash tube from the burner head through port "P". Previous to ignition some of this gas escapes through hole "H" to the immediate vicinity of port "P" and the burner head. When an ignitable mixture passes through the tube to pilot light "L" it ignites and flashes back through the tube, and it ignites the gas escaping from port "P" and also the gas which has escaped through hole "H", thereby igniting the main burner. It is obvious that if the mixture coming out through port "P" is already too lean for satisfactory ignition it will be further thinned by the excess secondary air in tube and become non-ignitable.

How to Angle Tubes

There are two principle troubles which occur with flash tube lighters and both are faults in design upon the part of the manufacturer. Many manufacturers try to "cobble-up" their ranges so that they will operate on either manufactured or propane gas, without taking into consideration that the characteristics of the two gases are different. Manufactured gas is lighter than air—therefore it rises when it escapes into the atmosphere. Propane gas is heavier than air—therefore it settles to the lowest possible level when it escapes. Flash tubes for manufactured gas should therefore run up-hill from the burner to the pilot light, and

Carrying forward the story of GAS REFRIGERATION in 1942 › › › › ›

During the coming months (and very eventful months they may be) Servel will continue to focus the spotlight on Gas Refrigeration in the pages of national magazines.

Advertisements like the one shown here are designed to drive home—in a vivid and memorable way—the message of Servel's silence, long life,

and exclusive "no moving parts" freezing system.

At no time has it been more important than it is now to keep people reminded of the products you sell, the services you render. In 1942, Servel advertising will do its part in keeping Gas and Gas Refrigeration to the forefront of the public mind.

★

★

flash tubes for propane should run down-hill from the burner.

The second trouble is in failure of the burner to light from the flash tube port although that port is ignited, and it is caused by another physical characteristic of propane. Manufactured gas has a wide explosive limit and propane gas a narrow one, as we have already noted in this chapter. For this reason a wide space between port holes permits greater dilution by secondary air, with a consequent failure to ignite from port to port if the space between them is too great. In a later study of burners we will learn why the distance between propane ports should never be greater than $\frac{3}{8}$ -in. Oftentimes the distance from flash tube lighter port to the ports in the burner head is 1-in. or more, and the head ports will not ignite from the flash tube port. The remedy in such a case is to drill a row of entrainment

holes with a No. 50, or smaller, MTD drill, running them from the flash tube lighter port to one of the burner head ports, and spacing them on $\frac{3}{16}$ -in. centers.

The pilot light "L" should be as small as possible and ignite the flash tube mixture without going out. Remember, gas burned in a pilot is "luxury" gas; it produces no useful work, and it adds slightly to the operating cost of the range. The adjustment for this flame will be found either directly beneath the pilot light or in the pilot light supply pipe adjacent to manifold.

Oven Burners. It will require a complete chapter for us to discuss the matter of thermostats, but we can tonight learn how to adjust oven burners for high and low flames, and how to calibrate thermostats. The procedure is as follows: 1—Set the thermostat at its highest temperature, usually 550° F. 2—light match and hold it to

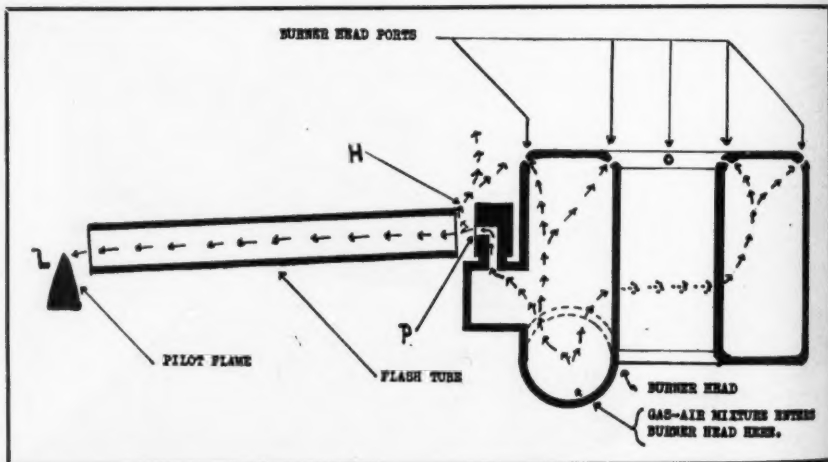


Fig. 3. Sketch of bowl type atmosphere burner head, flash tube lighter and pilot flame.

Defense Savings Pay-Roll Allotment Plan

How company heads can help their country, their employees, and themselves

voluntary pay-roll allotment plan

helps workers provide for the future;

helps store up tomorrow's buying power;

helps defend America today.

Business heads are adopting the Voluntary Pay-Roll Allotment Plan as a simple way for every worker to start a *systematic and continuous* Defense Bond savings program. It is a sensible step toward reducing the ranks of the post-war needy. It will help spread the financial participation in national defense among all of America's wage-earners. It will materially retard inflation by "storing" part of our pyramiding national income, thus reducing the demand for our diminishing supply of consumer goods.

In emergencies, America doesn't do things "hit-or-miss." We would get there *eventually* if we just left it to everybody's whim to buy Defense Bonds when they thought of it. But we're a nation of businessmen who understand that the way to get a thing done is to *systematize* the operation. That is why so many employers are getting back of this voluntary savings plan.

DSP-OP 1A

All you have to do is offer your employees the convenience of having a fixed sum allotted from each pay envelope to the purchase of Defense Bonds. Each employee who chooses to start this savings plan decides the denomination of the bonds to be purchased, and the amount to be allocated from his wages each pay day. You deliver a bond to the employee each time his allotments accumulate to a sufficient amount.

Plenty of help available. The Treasury Department is ready and willing to give you all kinds of help. Local civilian committees in 48 States are set up to work with you just as much as you want them to, and no more. We will supply most of the necessary material.



The first step is to take a closer look. Writing for details in no way obligates you to install the plan. It simply indicates that you'd like to do *something* to help keep your people off relief when defense production sloughs off; *something* to enable *all* wage-earners to participate in financing national defense; *something* to retard inflation and store up tomorrow's buying power. So, write for the free kit of material being used by companies that have installed the Voluntary Defense Savings Pay-Roll Allotment Plan. Address: Treasury Department, Section A, 709 Twelfth Street NW., Washington, D. C.

the burner or burner lighting hole;
3—turn on the gas.

After the burner is lighted, the primary air should be adjusted just as in the case of top burners. When this is accomplished the thermostat should be turned to its lowest setting.* The size of the burner flame should cut down materially. An ideal low flame is one which is just as low as it possibly can be and still not go out. Somewhere on the thermostat will be found a low flame adjusting screw, and this should be turned until the proper low flame is procured. After this is done the oven door should be opened and closed quickly several times. If this causes the burner to go out the low flame adjustment is too low. If it causes the burner to "pop back" and burn off from the orifice the trouble is one of burner design or proportioning and the remedy will be discussed in a later chapter on burners.

The next step is to adjust the oven pilot light. You will find a small pipe which terminates inside the oven near the burner, and when the burner is in operation a tiny yellow flame will be burning at the end of this pipe. The purpose of this pilot is to re-ignite the burner if it happens to go out. This flame should be about $\frac{1}{2}$ -in. long, and come within $\frac{3}{8}$ -in. of one of the burner ports. An adjusting screw for this flame will be found either upon the thermostat or in the pilot flame pipe line. Sometimes the tip of the pilot pipe is adjustable for flame size.

* This applies to oven thermostats which can be turned down to room temperature.

After this comes the calibration of the thermostat, and for this you will need an accurate mercury thermometer. Do not use a dial thermometer for this purpose. Set the thermometer in the oven, and set the thermostat for 300° F. Allow the oven burner to cut down, and wait five minutes after it has done this; then open the oven door and quickly read the thermometer. If the thermometer is not at 300° the dial on the thermostat must be set at the thermometer reading, without rotating the shaft to which it is fastened. It will be found that there is a chance to change this relationship—usually underneath the dial or within the dial assembly. After having recalibrated the thermostat a second test should be taken at 400°, and as many tests as necessary should be made until the thermostat setting and the oven thermometer temperature readings agree.

If the oven "creeps"—by which is meant the temperature goes to a higher level than the setting of the thermostat on each attempt at calibration—it usually indicates that the low flame adjustment is too high, and must be cut down before a proper calibration can be made.

A Caution for Servicemen

On some of the older thermostats of the solid rod type it is impossible to change the relationship of either the dial or the pointer in relation to the shaft. Some of these have an adjustment at the end of the solid rod inside of the oven; on others it is necessary to rotate the entire body of the thermostat on the rod or screw the rod in or out of

★ A SUBSTITUTE FOR BUTANE



Sometime ago when we began work on a substitute for butane that could be used in existing butane gas systems, we did not realize then that its need might be so near.

We are glad that we are now in position to assure the many thousands who are so vitally concerned that a new method and substitute fuel for continuing existing butane gas systems in service is ready. The method will be known and licensed under the trade symbol "VX", and here is further data about this substitute which will be of interest to butane dealers and consumers:

ADAPTABILITY

VX blend was developed primarily for existing domestic butane gas systems, but will serve many commercial and industrial butane consumers as well.

AVAILABILITY:

Components of VX blend are available in ample quantities and are not in large demand for military uses.

VAPOR PRESSURE:

The vapor pressure of VX blend as used in butane gas systems is comparable to that of the ordinary butane-propane mixes commonly used.

CONVERSION:

Ordinarily, no new equipment is required to convert a butane gas system from butane to VX blend.

APPLIANCES:

Appliances designed to burn butane gas perform even more satisfactorily with VX blend.

CONDENSATION:

VX blend is safer than butane or butane-propane mixes, because condensation occurs at lower than ordinary operating temperatures.

DISTILLATION:

Fractional distillation occurring in the use of VX blend is less than occurs in the commonly used butane-propane mixes, hence even better performance in appliances.

DISTRIBUTION:

Dealers' motor transportation and bulk storage facilities, in most instances, will require some modifications.

COST:

The cost of fuel by the VX method, depending upon market conditions, may be expected to compare favorably with prevailing costs of butane-propane mixes.

FOR FURTHER INFORMATION WRITE TO

SOUTHERN STEEL CO. *Liquid Petroleum Gas Division*

SAN ANTONIO, TEXAS

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the body of the thermostat. These thermostats are becoming less common, and it is suggested that the service man shall not tackle the servicing of these unless he has had previous experience with them or until he gets instructions from the manufacturer or studies carefully the later chapter in this course on thermostats.

Broiler Burners. Broiling is best accomplished by the infra-red heat rays, and a blue or purple flame is at the other extreme of the heat ray chart, and consequently lacking in them. For this reason the presence of a small amount of yellow in a broiler flame is desirable instead of objectionable, provided that no combustion odors, or soot, are produced. In many ranges, however, the same burner is used for both the oven and the broiler. In this case it is best to adjust the burner for oven conditions for the reason that the oven is used far more than the broiler.

Applies to Water Heaters, Too

While we have confined ourselves mostly to the adjustment of range burners, thermostats and pilots, what we have had to say applies equally well to burners on water heaters, space heaters, and other appliances. We will go much more into detail when we discuss burner, thermostat, and pilot designs in later chapters, but we should be able to adjust the majority of domestic appliances from what we have discussed tonight. All of these things will become more interesting to us when we learn how to design and build propane burners, and how thermostats and safety pilots work.

Let's digest this much before we go on to conquer new problems! So consider the questions below and then turn to Page 65 to check your answers.

Questions on Chapter 9

1. In making a pressure test why should the pressure be dropped to 80 in. of water column by opening an appliance valve after the cylinder valves are closed?
2. If there is a long pipe line why is a pressure test not always conclusive evidence that there is no leak?
3. Why should the pressure be adjusted to 10.45 in. of water column with all appliance burners in operation?
4. How should the flash tube run from the burner to the pilot light on a propane flash tube lighter?
5. What three tests should be applied to every top burner?
6. Why does the proper burner adjustment affect the satisfactory operation of a flash tube lighter?
7. What is the function of an oven pilot light?
8. What is the greatest distance that an oven pilot light flame should be from one of the burner ports?
9. What is usually the cause of a creeping oven temperature?
10. Why is it permissible to have small yellow tips on a broiler burner flame?

(Chapter 10 of THE BOTTLED GAS MANUAL will appear in the April issue, of BUTANE-PROPANE News).



ROPER

GAS RANGES

An Old Flame



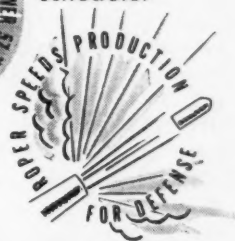
ROPER has contributed much to our national welfare. Today Roper gas ranges continue, cooking wholesome, nourishing foods, to maintain national health and morale. This job is important.

We are giving every possible aid to our nation in the present emergency. Vital war materials

are being manufactured on an all-out schedule.



Buy Defense Bonds



GEO. D. ROPER CORPORATION

GENERAL SALES OFFICE AND PLANT: ROCKFORD, ILLINOIS

ROPER GAS RANGES FOR ALL GASES INCLUDING (LP) LIQUEFIED PETROLEUM GAS

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Watch Your Delivery Costs!

WHETHER or not the butane gas dealership is realizing a maximum profit, no matter how much gas is being sold, depends largely upon how closely he watches costs, according to Leonard Warden, president of the Warden Butane Gas Service Co., of West Memphis, Ark.



LEONARD WARDEN

In business in his present location for only two years, Mr. Warden has developed a novel profit-vs.-loss accounting system which is an accurate barometer of whether the business of any particular area is worth taking on.

"The LP-Gas business is yet so new that most of us are still making plenty of mistakes," Mr. Warden says. "For example, many dealers are complimenting themselves on rolling up a long list of rural accounts which look profitable, but actually are not. Some of us will go 50 or 60 miles to deliver gas to a customer, and actually lose money consistently by doing so. Under these circumstances, the only way in which a dealer can accurately estimate his revenue is by setting up some plan whereby cost plus revenue show the actual profit in terms of gallons delivered."

Mr. Warden has approximately 250 accounts in small Arkansas cities surrounding West Memphis, which is a town of 4000 population. Surprisingly, though there are hundreds of rich plantations and large farms surrounding, 95% of Warden's business is concentrated in nearby small towns on concrete highways. In 1941, Mr. Warden sold 88 new floor furnaces, 80 of them to small-town residents, the remaining 8 to users only a mile or so from a principal highway. Until war conditions shut down on equipment he turned down a great deal of rural business, not because of lack of facilities to handle it, but simply because experience has taught him that higher cost involved made it profitless to do so.

Under the novel system developed by this Arkansas dealer, the "cash register" which is a barometer of profit income is the speedometer on two delivery trucks, one a 1000-gal. model, the other of 500 gals. Every cent of company revenue is figured on the basis of miles traveled by the two trucks, with the speedometer reading compared with total sales. "We base our profits on the number of gallons sold per mile each truck runs," Mr. Warden explained, "with a set minimum number of gallons which can be sold for a given number of miles to bring in a worthwhile profit."

For example, Mr. Warden says it costs him 25 cents a mile to

NOW

"America First"

IS MORE THAN A SLOGAN



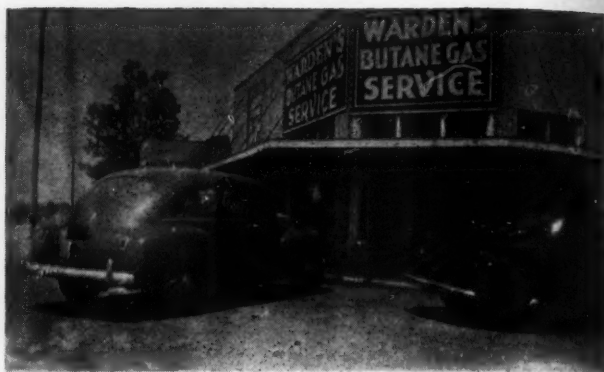
A RMS AND MEN . . . Equipment . . . Supplies. These are the sinews of war, the need of the nation. Every factor of production is responding to America's call. ☆ It's "America First" everywhere. PAYNE is proud to play a part in our country's preparation. PAYNEHEAT—in thirty-one cantonments and bases—is adding to the comfort, and guarding the health, of our soldiers. PAYNE's production facilities are engaged in manufacturing vital war materials. ☆ Thus, PAYNE's "priorities" policy must be: First, government requirements; second, established PAYNE Dealers; third, (if and when possible) new dealers. ☆ The understanding and cooperation already shown by PAYNE Dealers is most gratifying. You can be assured that we will take care of your equipment and service needs as promptly as possible.

PAYNEHEAT

MORE THAN A QUARTER-CENTURY OF SPECIALIZATION

Payne Furnace & Supply Co., Inc., Beverly Hills, California

▲
Headquarters of the
Warden Butane Gas
Service Co. in West
Memphis, Ark.
▼



operate each truck, this including insurance, gasoline cost, salary of a driver, investment in the building and stock, and salaries of his staff of employees. Against this cost-figure is applied the number of gallons sold on any specific trip. Thus, when the truck travels 60 miles to put out 1100 gals. in the underground tanks of customers, it delivers 18 gallons to the mile—at a profit of 90 cents per mile. Such a trip as this—amounting to most of the company's service—is considered well worthwhile, and has resulted in the fact that no deliveries are scheduled which do not show a profit of 30 cents per mile, which is the minimum figure.

In the interest of economy, Mr. Warden has figured out delivery schedule to a nicety, so that lost motion and waste cost are absolutely eliminated. When either of the trucks leaves the office or bulk plant, the driver's route is laid out on a mile-by-mile basis which indicates approximately how much gas he is to deliver to each customer, at what time, and under what circumstances. No driver is

required to "sell" his gas to prevent coming home with the truck partially loaded—Mr. Warden preferring, instead, to budget the delivery so that all gas within a three or four gallon minimum is delivered. "We want our drivers to spend all of their time delivering gas only," he explained. "And when they can do this job alone, without being forced to make an attempt to sell left-over gas, it is logical to assume that they will not waste a minute of delivery time."

Only in a few exceptional instances has the per-mile record shown a loss—and in these cases, Mr. Warden foresaw the loss, when "helping out" another dealer, or making special deliveries at a customer's request.

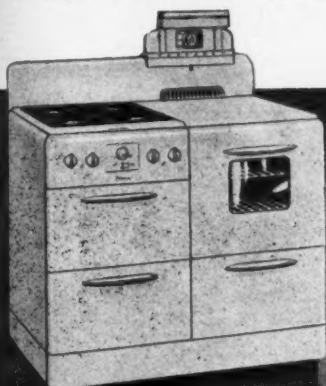
◆ ◆ **Bob Hooe, Butane Salesman, Joins Naval Reserve**

Bob Hooe, manager of the butane department of Hales and Symons, Inc., Sonora, Calif., has enlisted in the Naval Reserve, according to I. J. Symons.

Mr. Hooe has been assigned to the construction battalion with a rating of chief petty officer.



For 70 years, Florence has built outstandingly fine stoves and ranges. Year after year, Florence has given increasingly easier, better cooking to American homes. As a Florence Dealer, you have those 70 years of



FLORENCE GAS RANGES For L-P Gas

BACKED BY 70 YEARS' EXPERIENCE

fine, skillful craftsmanship *working* for you now . . . building *quality* into every inch of every Florence L-P Gas Range.

Today, we are building you as many new Florence Ranges as we can, consistent with an all-out war effort . . . we are doing our best for every Florence Dealer. We'd like you to remember in these abnormal times that Florence's long experience gives you something you can count on. It has seen Florence and Florence Dealers successfully through a good many wars and their problems!

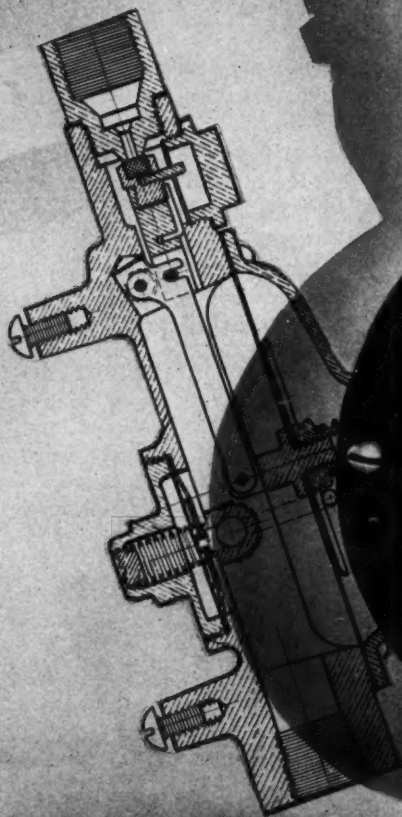
★ ★ ★

Florence Serves for Victory—At both Gardner and Kankakee, Florence workers are busy filling important Army and Navy contracts. This is in addition to supplying Florence Ranges and Heaters for Defense Housing projects.

FLORENCE STOVE CO., General Offices and Plant, Gardner, Mass.; Western Offices and Plant, Kankakee, Ill.; Sales Offices: 1459 Merchandise Mart, Chicago; 45 E. 17th Street, New York; 53 Alabama Street, S. W., Atlanta; 301 N. Market Street, Dallas; and 2730—16th Street, San Francisco.

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REGO
PRESSURE REGULATORS



REGO

PRESSURE REGULATORS

The American Eagle — symbol throughout the world of our fighting heart and strength — symbol of our eagerness to do the job that lies ahead as quickly and as well as we can.

In the LP Gas field there is another symbol — RegO — standing for dependable service and safe operation of LP Gas systems.

Included in the full line of RegO equipment are Pressure Regulators. They are especially designed for the LP Gas industry — being manufactured from materials that resist the action of LP Gases in both the gaseous or liquid state. These regulators have extra-large diaphragms which permit close control. Seat discs and nozzles can be easily removed for cleaning or replacement without disconnecting the regulator.

Insure Perfect Performance and Economy by Insisting on Genuine Bastian-Blessing
Products Identified by the RegO Trademark

The **BASTIAN-BLESSING Co.**

4233 Peterson Ave.,

Chicago, Ill.

Pioneers in equipment for using and controlling high pressure gases.

No RUTS For This Sales Force

By RUEL McDANIEL

AN outstanding factor in building a volume of business, primarily confined to rural customers, amounting to approximately \$76,000 a year, in about two years, is the plan for compensating outside salesmen as used by The Appliance Home, Marshall, Texas, according to B. M. Reeves, manager.

The compensation plan for these outside men calls for a salary of from \$15 to \$25 per week, plus sliding scale sales commissions ranging from 5% to 15%, depending upon volume of business done by individual salesmen.

A salesman makes 5%, in addition to his salary, on everything he sells up to \$1000 volume per month. If he sells more than \$1000 worth of merchandise (and his record is not considered satisfactory unless he does), he receives 10% commission on all business above \$1000, and up to \$2000. In other words, if a salesman's volume should amount to exactly \$2000 in a month, his commission would total \$150—\$50 on the first \$1000 and \$100 on the second \$1000.

If his sales in any one month exceed \$2000, he draws a commission of 12½% on all or any part of his third thousand; and of course he makes his 5% on the first \$1000 and his 10% on the second \$1000.

If his volume in any one month should exceed \$3000, then his commission jumps to 15% on all business above \$3000.

"The purpose of such a plan is

quite obvious," Mr. Reeves says. "We naturally do not consider a man's record satisfactory unless he goes substantially into his second thousand dollars worth of business each month; and, obviously, he works pretty hard to get into that bracket, because he knows his commission on all business he does above his first thousand is double what he makes on the first thousand.

"Also, we find that when a man sees any possibility at all of exceeding \$2000 in sales during a month, he works doubly hard, so that he can draw a commission of 12½% on at least a few hundred dollars of that month's volume.

Plan Acts as a Spur

"We find the plan is excellent in preventing the men getting into sales ruts. A man knows that he must sell at least \$1000 worth of merchandise to justify our paying him his small salary, and if it were not for the special commission incentive, he might become satisfied with around a thousand dollars worth of business and establish that volume as his unwritten quota. But knowing that the moment he starts on his second thousand dollars his commission is doubled, he adds that special push necessary to carry him over this thousand-dollar volume; and each time he makes a sale in



Housewives say:

**"Caloric Gas Ranges give
perfect results with L-P Gas"**

Dealers who want satisfied customers should investigate Caloric ranges. For these handsome ranges are engineered to operate perfectly with L-P gas. Housewives are enthusiastic about the fine cooking results they get with all types of "bottled" gas.

Most Caloric ranges feature a new Harper Burner System

especially adapted for economical, efficient use of L-P gas. Tests have proved that these modern burners save up to 39% on fuel—and are great time-savers.

Get in touch with the nearest Caloric representative. Caloric Gas Ranges, in a variety of models, may be ordered from 17 district offices over the country.

CALORIC GAS STOVE WORKS, PHILADELPHIA, PA.



the second bracket and sees his 10% pile up, he gets new incentive for pushing for a record each month.

Better Compensation Recommended

"Our men make from \$2000 to \$3000 per year on our deal and seem to be happy. They spend most of their money for good cars and equipment, which helps us I am sure. I believe it will be a grand day when the industry realizes the importance of hiring, training and compensating their retail salesmen as are lawyers, accountants and professional men."

The company employs six outside salesmen and these concentrate primarily on rural light plants, refrigerators and gas ranges; but of course they keep their eyes open for smaller sales as well.

They obtain their leads from actual canvassing among the better homes in the country that are away from power lines, and from their own users. By following up all sales, presumably to check up and make certain that the merchandise is

working satisfactorily, they are able to obtain names of neighbors and friends of customers who have expressed interest in the merchandise in use by the customer; and this source supplies most of the better type leads of the salesmen, Mr. Reeves says.

Salesmen sell primarily from pictures and catalogs. They do not push demonstrations, finding this plan too expensive and long-drawn-out to make the average sale profitable. Each salesman is equipped with a car, or "pick-up," with which he makes his own deliveries, as soon as a contract is obtained.

Uses Trailer as Display Room

Also, Mr. Reeves has a special trailer, upon which he has mounted a gas range and a refrigerator. This trailer serves as a "display room" when it is not otherwise in use, and it is parked in front of his residential-type place of business on a busy semi-business thoroughfare. The display may be covered from the dew and rain by a tar-

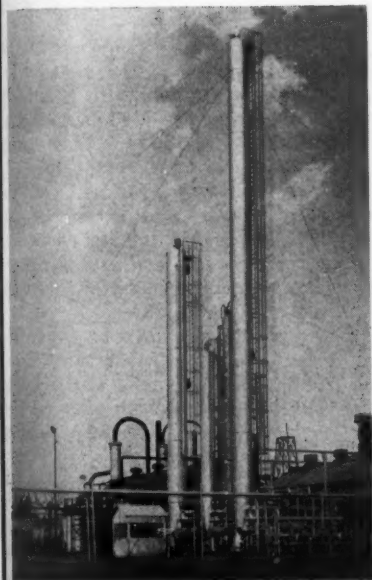


Display of equipment and appliances in front of the Appliance Home, Marshall, Texas, managed by B. M. Reeves.

Your Government Agrees With You about

SINCLAIR

PROPANE and BUTANE



The reason there is only enough Sinclair Propane and Butane to satisfy the expanded seasonal needs of our regular customers is because your government agrees with your preference for high quality. It agrees that Sinclair LP-Gas is invaluable for heat and power; for cutting, heating, treating, hardening; that our defense industries must have this clean, inexpensive, efficient, high quality fuel.

Our distributors report that a large percentage of their sales of Sinclair LP-Gas is consumed by national defense projects.

SINCLAIR PRAIRIE OIL COMPANY

LIQUEFIED PETROLEUM GAS DIVISION

SINCLAIR BUILDING

TULSA, OKLA.

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paulin specially cut and fitted to the trailer, when the merchandise is not actually being shown, or when the trailer is on the road.

The trailer is used not only to demonstrate a unit to a prospect in the country, but it has been found to be an excellent publicity medium when pulled up in front of a rural store where considerable numbers of farmers and ranchers gather. It attracts attention and elicits questions from onlookers, and this in turn provides an occasional lead of importance.

"However, we are demonstrating less and less, finding that it is possible to sell a complete installation from a catalog and pictures. When we can do that, we reduce the cost of selling materially, and that is something that must be done in this business in order to show a profit," Mr. Reeves says.

Dallas Tank & Welding Co. Enlarges Office Facilities

The Dallas (Texas) Tank & Welding Co., Inc., has completed its fourth expansion of office facilities at 201-5 West Commerce St., Dallas. W. W. Banks, president of the company, has moved into a new private office. Mrs. Sue Gibbons, secretary and treasurer of the firm, will occupy Mr. Banks' former office.

The new office is trimmed in mahogany finish wood. Two double plate glass windows have been installed and the office insulated on the four walls with rock wool, with additional sound proof material also being placed on floor, ceiling and walls. This has been done to cut down the shop noises coming from the plant.

In the rear of the office building another room has been added which

contains a butane operated Fraser furnace of 125,000 B.t.u. capacity per hour. The furnace is equipped with Minneapolis-Honeywell controls and a Yorkaire conditioner has been installed.

Dimensions of the shop office, which houses the shop foreman, purchasing agent, and insurance inspector, have been increased to 8 by 40 ft. A new private office for Roy J. Dillon, production superintendent, was recently added to the northeast corner of the building. During October, 1941, the company sold 1082 butane plants, establishing an all-time firm record.

Bendix Co., Wood Lake, Minn., Incorporates for \$100,000

The Bendix Co., of Wood Lake, Minn., distributors of "Liquefied Natural Gas" and appliances in this territory, have recently filed Articles of Incorporation for \$100,000.00 with the Secretary of State.

Harvey Bendix, president of the new corporation, and owner of the Bendix Co. prior to its incorporation, stated that the officers and directors have not been chosen, but will be announced at a later date.

The new corporation was organized on account of the rapid growth of the company, which now serves more than 600 customers with gas service for cooking, heating, water heating and refrigeration, as well as commercial establishments such as restaurants, cafes, bakeries, cream stations, printing and dry cleaning plants, etc.

The amount of gas sold for the six-month period ending Oct. 31 was more than 5,600,000 cu. ft.

The company also handles a complete line of commercial and domestic gas appliances such as ranges, water heaters, refrigerators and space heaters. More than 250 ranges were sold to customers in the territory served by The Bendix Co. last year.

INSURE CUSTOMER SATISFACTION

BY DEPENDABLE GAS REGULATION

Correct and uniform pressure at the burners means efficient combustion.

Since the beginning of the Liquid Petroleum Gas industry, Reliance Regulators and the patented automatic Indicator have been giving perfect service in domestic and industrial installations.

Specify Reliance Regulators for single cylinders, single stage reduction, two-cylinder two-stage reduction or multiple cylinder single-stage reduction. These Regulators have been approved by the National Board of Fire Underwriters.



Send for Bulletin 40-A

RELIANCE REGULATOR CORPORATION
1000 MERIDIAN AVE., ALHAMBRA, CALIFORNIA

Good Carburetion —AN ESSENTIAL

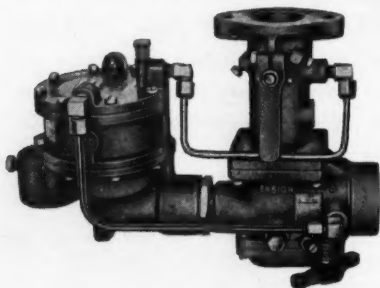


Speaking of essentials—good carburetion is vitally necessary for continuous dependable engine performance. Building good carburetion equipment is our business.

Essentially, internal combustion engines provide the most valuable source of power—the kind of power that will win a mechanized war. Drilling wells, pumping the crude, refining and transporting the finished product—high test gasoline utilized in a thousand defense needs.

Maximum engine performance depends upon the accurate control and proportioning of gas-air mixtures. This is the principal function of ENSIGN Fuel Regulators and Gas Carburetors.

Constant research and testing results in the development and application of new and improved principals—those features you enjoy in today's carburetion.



ENSIGN

CARBURETOR CO., LTD.

HUNTINGTON PARK, CALIF. • DALLAS, TEXAS • CHICAGO, ILL.

BUTANE *Power*

Heavy Equipment Costs Lowered When Butane Installed

ONE of the outstanding butane power installations made in the Texas area during 1941 was by Vapo-Gas Systems, Inc., of San Antonio, on equipment owned by the Briggs-Killian Co. Fifteen pieces of machinery were equipped to operate on butane.

Roadmaster carburetion equipment, including filter, heat exchanger and carburetor, was used throughout by the Vapo-Gas company, distributors for Roadmaster

LP-Gas equipment in southeastern Texas.

The equipment changed over to butane included seven Euclid dump trailers, one White truck, one road maintainer, three water trucks, one dirt shovel, one welding truck, with extra motor for welding, and one Chevrolet truck. All of the equipment is of the heavy duty type used for road construction and maintenance. The Euclid dump-trucks carry 12 to 14 yards of dirt.



A portion of the eight pieces of equipment converted to operate on butane for the Briggs-Killian Co. of San Antonio, Texas. Other pieces include shovel, welding equipment and water wagons. They are saving money for their owners, lasting longer for Uncle Sam.

According to reports coming from men in charge of the equipment, the change-over to butane has given a fuel saving as high as 20% and one gear increase in power.

One piece of equipment, the road maintainer, was operating on a Hesselman type diesel motor prior to the change-over. The motor was successfully equipped to operate on butane. A substantial increase in power and economy is reported.

In the case of the welding truck, the installation was a little out of the ordinary. The welding equipment operates on a separate motor, also equipped to use butane. Fuel for both the truck and welding motors comes from the same tank. In addition to this, vapor from the tank is used for the operation of a cutting torch.

The saving in fuel, oil and motor wear has helped to make the use of butane on this equipment a practical and economical success.

Winther Bros., Fresno, Calif., Doubles Size of Plant

Completion of an expansion program that involved an outlay of approximately \$20,000 in doubling the size of the plant and facilities has been announced by Clarence Winther, general manager of Winther Bros., Fresno, Calif., automotive, tractor and farm implement repair and engineering firm. Today a major portion of their business is the conversion of heavy duty gasoline engines to butane. They are district representatives of the Ensign Carburetor Co.

The firm of Winther Bros., consisting of Clarence and L. V. Winther, launched their business 27 years ago in a small shop at 730 Van Ness Ave.,

where they were aided in their work by their father. The business thrived and in 1920 they were forced to seek larger quarters. Another expansion move involved the erection of the original unit of their present plant at 612 Divisadero St..

The present expansion gives the firm 7500 sq. ft. of floor space devoted to machine shop and service activities, which require the services of a staff of 11 in addition to the owners.

Motor Tire & Supply Co. Is California Butane Dispenser

Six months ago the Motor Tire & Supply Co., 1417 East Anaheim, Wilmington, Calif., began dispensing butane, and the gallonage has been rising steadily since that time, states Edward Jenkins, salesman for the firm, of which W. B. Chesnut is president.

Mr. Jenkins attributes a large part of the company's business to its location, in the heart of a national defense area and on a major truck highway. Surrounding trailer camps have accelerated the bottled gas business and butane conversions are now being featured. The company stays open until midnight seven days a week.

Santa Fe Dam, Azusa, Calif., Will Use 17 Butane Trucks

Butane will supply the power on trucks operating at the Santa Fe dam, now being constructed near Azusa, Calif. This became a definite fact recently when contractors for the job ordered 17 new, specially built, dump trucks from Six Wheels, Inc., of Los Angeles.

The new units will include six 12-yard and 11 25-yard trucks. All will be powered by Hall-Scott engines. Ensign carburetion equipment will be used throughout. Parkhill-Wade is furnishing fuel tanks and brackets.

Florida Dealer Buys Modern Delivery Truck

Safety, economy, speed and convenience have been incorporated in the plan and construction of a new delivery tank truck recently acquired by the Suburban Gas Co., St. Augustine, Fla., a distributor for Green's Fuel, Inc., Sarasota, Fla.

The chassis is a Dodge 1½ ton, cab-over-motor job. It is equipped with a Roper No. 2 butane pump and power take-off. The pump has a built-in by-pass. It is mounted on the side of the truck frame on a vibration dampener base, also furnished by Roper. Flexible metal hose lengths connect directly to the pump so that the road strains or vibration will not cause injury. A strainer is installed in the pipe line to the pump to prevent scale or welding lumps.

The tank carries a payload of 1000 gals., with water capacity of about 1150 gals. All outlets from the tank are housed in dome end at rear of dome, with shut-off valves which are turned off after each customer delivery. Heavy copper 1½-in. piping to the pump and 1-in. copper piping from the pump are connected to the outlets in the dome. If the truck should be wrecked or turn over, tearing loose the piping, the outlets in the dome still would be protected. The fill hoses are housed in the dome.

The running board was extended at the cab back to the rear dual wheels and finished with a fender over the wheels. This was done with heavy 12 gage steel, reinforced with angle steel to protect from side-swiping. (Photo on this page).

The truck is equipped with all necessary marker lights.



Newly acquired delivery truck of Suburban Gas Co., St. Augustine, Fla., distributor for Green's Fuel, Inc., of Sarasota, Fla.

BANKS TANKS DOMINATE

On The Assembly Line



By

W. W. BANKS

**BUY
DEFENSE
STAMPS!**

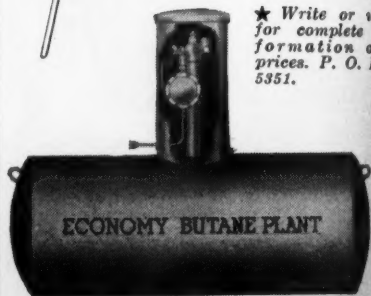
Ours is an industry noted for doing things . . . for vigorous accomplishments . . . for getting ahead with the job. Let each one of us now turn these energies to buying Defense Stamps and Bonds. We of the Industry will contribute our part! Let every executive take the lead by setting an example for his employees . . . let's keep America free! Our big problem now is not for the government to save our business BUT FOR OUR BUSINESS TO HELP SAVE THE GOVERNMENT! Let's all do our part!

We Manufacture All Types of Tanks

In addition to Economy Butane Systems we manufacture all types of Truck Tanks, Bulk Storage Tanks, Skid Tanks, Butane Motor Fuel Tanks, Smoke Stacks, Breechings, Steel Plate Fabrications. We are distributors for Scaife Cylinders, and Tru-Flame Butane Gas Ranges.



★ Write or wire for complete information and prices. P. O. Box 5351.



**DALLAS TANK
AND
WELDING COMPANY, INC.**
201-5 W. COMMERCE ST. DALLAS, TEXAS

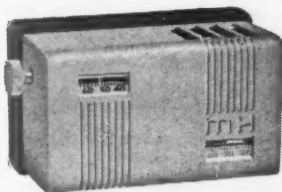
PRODUCTS

Portable Oven

The G. S. Blodgett Co., Burlington, Vt.

Model: No. 963 Blodgett Oven.

Description: This is a new development in a portable oven. It has a sectional baking and roasting oven, composed of three separately controlled sections. The construction features include: Baking sections, 7 in. high; roasting section 12 in. high; all sections are insulated, top, bottom and sides; oven doors insulated and counterbalanced; door handles of tubular construction; rear vent flue insulated and equipped with draft diverter; each shelf equipped with steam jet for baking hard crust rolls and bread; gas piping, valves and temperature controls accessible in compartment with removable panel; gas burner of corrosion resisting ribbon type having one-piece cast body.



Horizontal Thermostats

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Models: TA42A and TA42B.

Description: Designed for use where accurate and dependable control of line voltage, heavy duty devices are involved and are capable of handling directly large motor driven units, cold blowers, cooling equipment, industrial and commercial stoker fired heating plants, etc. On larger or polyphase motors they should be used in connection with magnetic starters. They can be used in low voltage circuits. The horizontal design provides maximum air circulation and greatly reduces the effect of contact heat. This is a non-magnetic switch, self enclosed to protect it from dirt, dust, moisture and grime, and has been proved by exhaustive tests to be capable of years of dependable service.



Synthetic Diaphragms

Vulcan Proofing Co., 1st Ave. and 58th St., Brooklyn, N.Y.

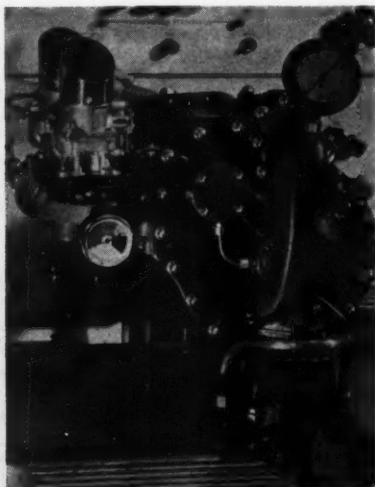
Description: This synthetic diaphragm is now available for all standard makes of tin and iron case types of LP-Gas meters. It is claimed that the synthetic diaphragms maintain their flexibility

and will not shrink or stretch in service. Should temperature conditions cause gas temporarily to change to a liquid, the Vulcan diaphragm will not be affected. Diaphragms made from the same synthetic compounds on various weights of fabrics are available also for all types of gas pressure regulators and thermostat controls.

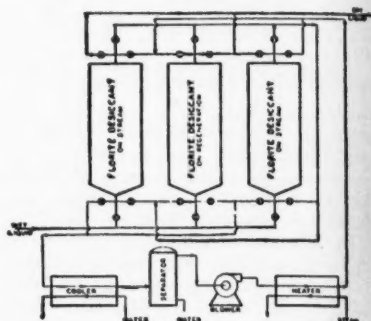
Supercharger

Electric and Carburetor Engineering Co., 2323 E. 8th St., Los Angeles

Description: This is a new, slow speed, high volume, rotating valve and impeller type supercharger that is now in production. Its uses include building of low gas pressures from six to eight ounces up to 10 lbs., where it can be used on large industrial installations; supercharging butane and gasoline fueled trucks and racing engines; maintenance of constant cabin pressures for stratosphere flight for both army and navy; supercharging of aircraft engines; maintaining forced ventilation systems on railroad pullman cars. Outstanding feature of the super-



charger is that it will operate at crankshaft speed—or less—depending upon volume necessary, assuring a life as long as the power unit driving it. The blower will operate with a minimum clearance tolerance of .015 and a maximum of .060.



Drying Agent

Floridin Co., Inc., 150 Liberty St., Warren, Pa.

Description: Florite Desiccant, a new granular drying agent for gases and liquids, has recently been placed on the market. It has been applied to a variety of industrial processes requiring bone dry gases and liquids, and has also proved economical in many installations where high drying efficiency is not ordinarily demanded. Among the products now being successfully dehydrated are natural gas, propane, gasoline, air, nitrogen, and carbon dioxide. It may also be used in breathers for storage tanks and electrical transformers, to dehumidify air in air conditioning systems and to dehydrate refrigerants. It adsorbs water instantly and will not swell, disintegrate, or appear wet at the end of an adsorption cycle. It is hard, stable, non-corrosive, and non-poisonous. Florite Desiccant selectively adsorbs 4 to 20% of its weight in water, depending on the particular application, and is regenerated by heating to 300–350° F.

BUTANE-PROPANE News

DIDJA KNOW BY WEL



O. E. Dustman, Brodie Manager Passes Away in Los Angeles

O. E. Dustman, southern California manager of the Ralph N. Brodie Co., with offices in Los Angeles, died Feb. 3 in Los Angeles, of heart attack.

Mr. Dustman was widely known in the petroleum and natural gas industry, having headed the Brodie Los Angeles office for more than nine years.

He is survived by his widow and two daughters. Interment was made in Forest Lawn Memorial Park, Glendale.

Mr. Dustman was born and raised in Indiana and was 56 years old at the time of his death.



O. E. DUSTMAN

Extension Course Covers Automotive Transportation

Planned for executives, junior executives, and understudy men in the important field of automotive transportation is a special course in "Automotive Transportation Management" which the University of California Extension Division opened on Tuesday evening, Feb. 10, at its 813 south Hill St. classroom center in downtown Los Angeles.

The class which started on that date is part of a two-year course being offered by the University under Dr. Vernon D. Keeler, assistant professor of management and industry. This new session, which is to be held weekly on Tuesday evenings, will deal with matters of current interest, with several outstanding speakers discussing problems of motor transport in the defense effort. The new session,

which is open to men interested regardless of previous enrollment, will also feature the study of motor transport documents, public relations problems, and other pertinent subjects in the automotive field.

Large Butane Tank Installed in Burney, Calif.

A 7,000-gallon butane tank, big enough to hold almost an entire carload of motor fuel, arrived in Burney, Calif., in late December and is being installed at Frank Schott's truck garage.

The huge metal container, is protected with silvery aluminum paint and shaped like a dirigible balloon cylinder pointed at each end. It was built at Emeryville, Calif., by the Ransome Co., at a reported cost of \$2,700. Mr. Schott brought it to Burney on a lumber truck and trailer, on a return trip from the lower Sacramento Valley, where he hauled a load of Schott lumber.

Mr. Schott has one motortruck which burns butane, but the small butane tank at his truck garage belongs to John Suverkrup, San Bernardino lumberman and trucking contractor, who hauls lumber from Potosi to Big Bend, and refuels his trucks at Burney.

Plant Doubles Production With Refrigeration Installation

Announcement has been made by Anson W. Dwen, plant superintendent of the Anchor Gasoline Corp., of the plant located at Bunkie, La., that through the recent installation of a refrigeration system, the butane-propane production has been increased approximately 100%.

Improvements have been made on truck loading facilities at the Anchor's plant. Tank cars can be loaded from the plant also.

ANSWERS

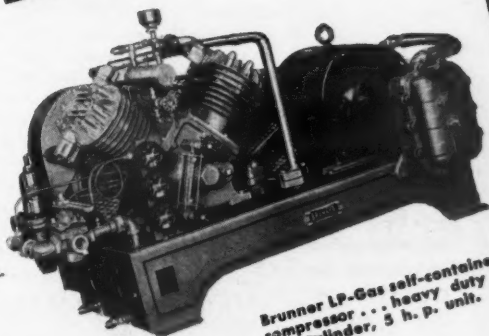
To Chapter 9 The Bottled Gas Manual

Here are the answers to the questions on Page 42 and which refer to problems in Chapter 9 of THE BOTTLED GAS MANUAL:

1. In order to make sure that the valve inside of the regulator has opened and that there is equal pressure on the entire system from the cylinder valves to the appliance valves.
2. Because expansion of the gas due to heat may offset pressure lost by a leak.
3. Because a drop of .55 in. is permissible, also pipe lines are designed for this amount of drop.
4. Down hill.
5. Sight, smell, boiling water test.
6. If the burner adjustment is too lean the gas going thru the flash tube will be further thinned out by the air in the tube and become ignitable.
7. To light the oven burner in case that it goes out.
8. Three-eighths of an inch.
9. Too high a by-pass or low flame.
10. Because broiling is best done by the infra-red rays, and more of them are present in a yellow flame than in a blue or purple flame.

**500 TO 1000 LBS.
LP-GAS SAVED**
Per Tank Car wherever Brunner Units Operate

Liquid Petroleum Gas operators using the Brunner LP-Gas Unit recover 500 to 1000 lbs. of gas from every tank car unloaded. This saving alone quickly pays for the initial cost of the Brunner self-contained unit. And because LP-Gas is a necessity in many defense areas, this gas saving is important as a conservation measure. Brunner Manufacturing Company, Utica, New York, U. S. A.

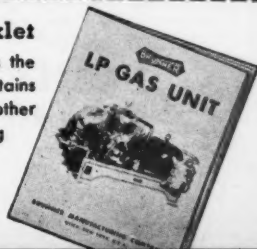


Brunner LP-Gas self-contained compressor . . . heavy duty 4 cylinder, 5 h. p. unit.

BRUNNER
FOR OVER 30 YEARS
THE SYMBOL OF QUALITY

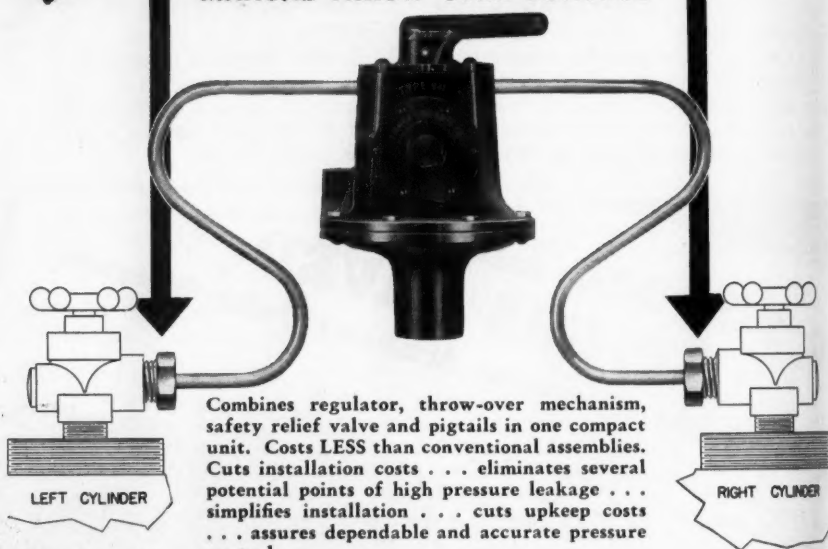
Write for FREE Booklet

The new booklet describes the Brunner LP-Gas Unit, contains illustrations, diagrams and other pertinent facts on handling liquid petroleum gas.



A Single UNIT FOR TROUBLE-FREE SERVICE

FISHER TYPE "All in One" 941 REGULATOR MANUAL THROW-OVER CONTROL



Combines regulator, throw-over mechanism, safety relief valve and pigtails in one compact unit. Costs LESS than conventional assemblies. Cuts installation costs . . . eliminates several potential points of high pressure leakage . . . simplifies installation . . . cuts upkeep costs . . . assures dependable and accurate pressure control.

Capacity 100 Cu. Ft. per Hr. or more. Net weight 5½ lbs. Listed as standard by Underwriters Laboratories.

REGULATOR — Features outstanding capacities and accurate regulation. Thoroughly factory tested.

THROW-OVER MANIFOLD — Fully enclosed and easily operated. Maintains tight shut-off on reserve cylinder.

SAFETY RELIEF VALVE — Built in, diaphragm operated, spring actuated. Factory set and sealed.

PIGTAILS — Inlet adaptors silver soldered to pigtails . . . eliminates points of leakage. Easily removed for cleaning or inspection. Furnished bent to specifications.

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• MARSHALLTOWN, IOWA

RESEARCH

• EACH MONTH a competent staff reviews more than 70 publications serving the oil, gas and affiliated industries in a search for those published articles of value to technicians and executives in the liquefied petroleum gas industry. In this department of BUTANE-PROPANE News, brief abstracts of such articles are presented.—Editor.

Fuels and Lubricants in National Defense—C. M. Larson. *Mechanical Engineering*, Nov., 1941, pp. 780, etc. Author discusses the progress made to date and future standardization planned in the War Department whereby the fuel and lubricant requirements of the National Defense equipment for the motorized and armored divisions and other field forces are reduced to a practical, feasible number.

Oil-Transportation Routes Changed to Meet Exigencies—H. S. Morgan. *Oil and Gas Journal*, Nov. 13, 1941, pp. 16, 17. Data on interstate and intrastate movement of crude oil to refineries reflect the changes forced on the petroleum industry in its transportation operations by assignment of American tankers to British service. Deliveries were maintained at high levels by using all available facilities.

The Synthesis and Properties of Hydrocarbons of High Molecular Weight—J. N. Cosby and L. H. Sutherland. *Refiner*, Nov., 1941, pp. 115, etc. This paper is a summary of the first 16 months' work on American Petroleum Institute Research Project 42, on the synthesis and properties of hydrocarbons of high molecular weight, at the Pennsylvania State College. The synthesis of these hydrocarbons had as objectives the obtaining of data: 1. To permit conclusions on the effect of chemical

structure on physical properties in the higher-molecular-weight ranges. 2. To furnish data on hydrocarbons of high molecular weight of value in identification of hydrocarbons or hydrocarbon mixtures isolated from petroleum. 3. To afford data useful in chemical-engineering calculations on petroleum fractions above gasoline. 4. To provide the industry with reliable methods of preparation and purification of hydrocarbons of high molecular weight which will be useful guides when the need arises for preparing larger quantities of such hydrocarbons. Twenty-two hydrocarbons ranging in molecular weight from 344 to 450 have been prepared with a purity of 95% or better. Several generalizations have been pointed out in the relation of physical properties to structure. Application of the data presented in this paper has been made in checking the work of Kurtz on molecular volume. An A.P.I. paper.

1941 CFR Road Detonation Tests—J. M. Campbell, R. J. Greenshields, W. M. Holaday, and O. B. Veal. *Refiner*, Nov., 1941, pp. 143-148. The cooperative road tests carried out during the past year have added considerable information and experience to that already existing on the subject of road detonation testing. Extensive data were obtained on the fuel requirements of the 1940 and 1941 models of the three most popular cars. Corresponding data were obtained on the knocking characteristics of current gasolines representing the bulk of sales volume in various parts of the United States. On account of large variations in octane number requirements among different cars of the same make—due to difference in ignition timing, combustion-chamber deposit, and other causes—and on account of variations in com-

mercial gasolines, it has been necessary to use statistical methods of analysis in the appraisal of fuel and engine relationships. These methods of analysis have been applied in a number of ways, and have proved very useful. For this reason, the continuance of cooperative activity in compiling current statistical information annually on fuels and car requirements is recommended. This paper was presented at the annual meeting of the A.P.I., San Francisco, Nov. 7, 1941.

Vapor-Saving Roofs for Gasoline Tanks Found Profitable at Bettendorf. *National Petroleum News*, Nov. 5, 1941, pp. 19-22. As the handling and storage of gasoline has greatly increased in volume per bulk plant, especially with so much barge transportation as today, oil companies are devoting more engineering and more money to saving gasoline vapors at these points of storage. This is done not only to have more gasoline to sell but to keep the gasoline in its best condition, so it will not lose in volatility or in octane rating. One of the best illustrations of this type of vapor-saving storage is on the Mississippi River, at Bettendorf, Ia., just across from Rock Island, Ill. Here five oil companies have a total storage of 20,500,000 gals., that for gasoline being all of the vapor-saving type. Three of these storage terminals are owned by major oil companies and two by independent jobbing companies, the last two just recently completed. Described and illustrated.

The Partial Volume and Its Significance—B. H. Sage and W. N. Lacey. *California Oil World*, 2nd Nov. issue, 1941, pp. 31-35. Part 1. The physical significance of the partial specific volume is discussed in some detail with especial reference to the concept of variable weight systems. The methods whereby the partial specific volume may be evaluated from experimental data are described and several applications of this property to the solution of industrial problems relating to systems of variable weight are in-

dicated. In many of the industrial operations encountered in the petroleum industry, it is of importance to predict the specific volume or its reciprocal the specific weight, for a particular mixture at a given temperature and pressure. During the last decade a great deal of effort has been expended both in the accumulation of the necessary factual information relating to hydrocarbons and in the correlation of these results so that they might be of value to the practicing engineer. Among the various methods that have been proposed for the correlation of the behavior of hydrocarbon mixtures, the use of the partial volume has been suggested. It is the objective of this discussion to describe the significance of the concept of a partial volume only with regard to its application in industrial calculations and not to attempt to indicate the more general utility of such concepts. A C.N.G.A. paper.

Proposed California Natural Gasoline Association Gas Engine and Compressor Committee Bulletin on Calculating Compressor Horsepower and Capacity—T. A. Dunlap. *California Oil World*, 1st Dec. issue, pp. 18, etc. The Gas Engine and Compressor Committee, organized in 1935, has as its purpose the promotion of agreement and standardization on the problem related to engine and compressor operation in the natural gasoline industry. Its goal has been to assemble data in accurate and usable form, and to present it to the industry as a C. N. G. A. Engine and Compressor Handbook. This publication is a tentative first step towards realizing this long-sought goal. A C. N. G. A. paper.

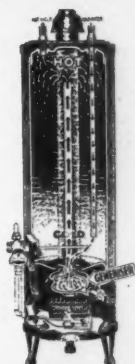
Calibration of Displacement Meters on Volatile-Liquid-Petroleum Fractions—E. W. Jacobson. *Transactions, A.S.M.E.*, Nov., 1941, pp. 701-704. The author describes a prover design for use in calibrating displacement meters on volatile-liquid-petroleum fractions such as gasoline which will eliminate errors caused by evaporation, change in temperature, and en-

For Water Heating . . . L.P.G.'s
TOUGHEST HOUSEHOLD JOB...

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 GOOD WILL WITH
 "GENERALS"**



Proven superiority for low hot flame
 L.P. Gas... scores of exclusive fea-
 tures... 100% gas shutoff (burner
 and pilot). Be SPECIFIC—recom-
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WATER HEATERS

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 MADE FOR
 BOTTLED
 GASES

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**"They
 Keep 'Em
 Rolling"**



READ the following state-
 ment of F. D. Pearce, Supt. of Maintenance for
 California Milk Transport—pictured here point-
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 Butane Carburetor assemblies:

"We've never had a service call from
 any driver of a truck equipped with
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 ter of butane carburation."

Write Roadmaster Products Co. for complete
 letter of Pearce and other fleet operators.

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 8-page book
 POWER, today!

BUTANE CARBURETORS

MARCH-1942

tainment of gases in the test liquid. Details are also given of a simplified commercial type of prover. This type of prover has been successfully used on an extensive meter-testing program at the Gulf Research Laboratory as a part of the 25-year program of the A.S.M.E. Fluid Meters Committee.

Improved Truck Operation Adds to Jobbers' Profits. *National Petroleum News*, Dec. 3, 1941, pp. 24, etc. How do independent oil jobbers, 1941 model, operate their tank trucks? How many hours a day do they work their trucks? How far do they haul? How many gallons do they handle? Are jobbers building up bigger "dumps"? These are questions that become important as we move into a strict war defense economy with greater need for more economical and efficient operation in the face of rising costs. To get a cross-section picture that will be valuable to jobbers in the same gallonage group, this article presents the results of a comprehensive survey among independent oil jobbers on trucking operations.

Analysis of Hydrocarbon Gas Mixtures by Mass Spectrometry—Herbert Hoover, Jr., and Harold Washburn. *California Oil World*, 2nd Nov. issue, 1941, pp. 21, 22. The purpose of this paper is to present the progress that has been made in applying the mass spectrometer to the analysis of certain gas mixtures which are of particular interest to the gasoline industry at this time. This may be especially true in view of some of the problems that have arisen in conjunction with the national defense program. A C.N.G.A. paper.

Studies in Standardization of Gaging Methods for the Shipping of Liquefied Petroleum Products by Vehicular Units—W. B. Parks. *California Oil World*, 1st Dec. issue, 1941, pp. 15, etc. A C.N.G.A. paper.

Full Text of OPM's Order for Tire Rationing. *National Petroleum News*, Dec. 31, 1941, pp. 6, etc.

Mechanical Supercharging of Diesel Engines—H. L. Knudsen. *S.A.E. Journal*, Nov., 1941, pp. 481, etc. The most serious problem arising from higher degree of supercharging is the increase in exhaust temperatures and the amount of additional heat to be handled. This conclusion is expressed following a theoretical exploration into the possibilities of supercharging and the ultimate limit to which it is possible to go. Efficiencies which may be expected with increasing degrees of supercharging, with and without compressor intercooling, are predicted. Some of the present-day superchargers are discussed, including the Roots, vane, centrifugal, and exhaust turbo-type blowers, and the advantages and disadvantages of each are given. The author emphasizes the need for more compact and efficient accessories. No attempt has been made, he says, to improve the specific capacity of these units, with the result that, "as we go down in engine size and up in horsepower, the auxiliaries become larger, heavier and bulkier than ever—so much so that, at the present time, we are almost to the point where the engine proper is completely hidden behind an assorted number of clumsy and unwieldy accessories."

Present Status of Synthetic Rubber—E. R. Bridgwater. *Industrial and Engineering Chemistry*, Nov., 1941, pp. 1342-1346. Author discusses: Synthetics for tires; other synthetics; future construction of plants; other materials involved; possible postwar expansion; properties of various synthetics.

National Defense Fires. Published by the National Fire Protection Association, Nov. 1, 1941. The fires pictured in this booklet are typical examples of recent spectacular fires that have been and are hampering defense production.

Computing Gas Flow in Pipe Lines—P. McD. Biddison. *Petroleum Engineer*, Nov., 1941, pp. 60 etc. Part 3 and last. Part 1 in August issue; Part 2 in September issue.



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for Scaife Cylinders &
Butane Gas Systems!

Despite today's shortages, we have good stocks of Butane Gas Systems, also Scaife Cylinders. If YOU need these goods, and hold priority rating, rush in your order NOW. Write or wire us about other needs—we may have them for you!

SOUTHERN GAS & EQUIPMENT CO.

Little Rock,
Arkansas

ALL TYPES LPG EQUIPMENT

Birmingham,
Alabama

"Serving Arkansas, Louisiana, Missouri and the Southeast"



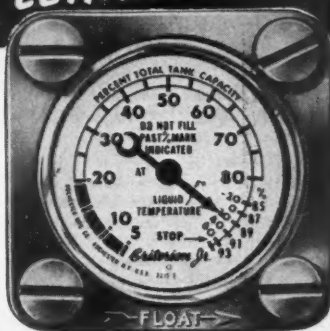
ELIMINATE
THE POSSIBILITY OF
GAS LEAKAGE...

BY INSTALLING THIS
LEAK-PROOF GAUGE!

Designed SPECIFICALLY for use in L.P. fuels, Rochester Criterion Gauges incorporate a time-tested principle of MAGNETIC OPERATION which assures dependable accuracy and positive leak-proof construction. Underwriters' listed.

MANUFACTURERS! Specify Criterion Gauges on your L.P. Gas Systems.

ROCHESTER MFG. CO., INC.
17 Rockwood St. Rochester, N. Y.



ROCHESTER *Individualy Calibrated* **INSTRUMENTS**
GUARANTEED ACCURATE

MARCH-1942

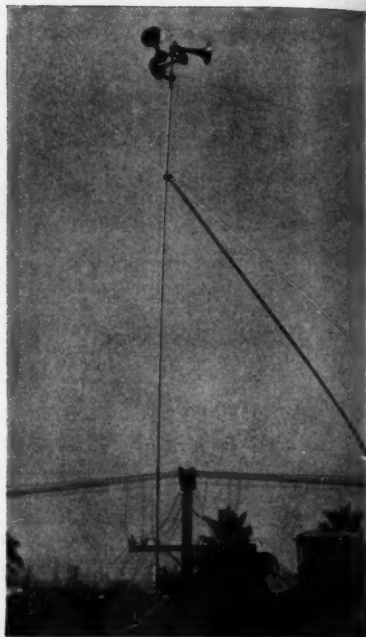
Warning Horn Is Okayed

AFTER inspecting and testing the city's newly completed system of air raid horns, Fire Chief Allen C. Duree, of Long Beach, Calif., expresses his satisfaction over this type of warning signal and heartily approves of the use of propane as a source of pressure.

The system was completed early in January by engineers of the city fire department. Today 16 units are located at vantage points throughout the city, ready to blast warning signals if a raid should occur.

Each unit is provided with an ICC bottle, to which is connected the equipment necessary to operate the horns. As shown by the demonstration unit in the picture on this page, the equipment is simple and easy to install. It consists of a shut-off valve, attached to propane bottle; a small strip of metal with 1-in. hole, bolted to the collar of the bottle, through which an outlet pipe passes; a 200-lb. pressure gage to determine tank pressure at all times; Reliance pressure regulator, set for 50 lbs.,

- The operation of air raid horns on LP-Gas by the City of Long Beach, Calif., has attracted considerable attention. Since the publication of a story in the February issue of *BUTANE-PROPANE News* (Page 88), the installations have been completed and have proved successful. Further information and pictures are printed for the enlightenment of dealers and city officials throughout the country who may see in this class of installation a plan that can be applied advantageously in many places, especially rural communities.—Editor.



One of the installations on firehouse. Whistle valve is located just below horns. Cord may be seen extending down pole. Regulator is located just above edge of building.

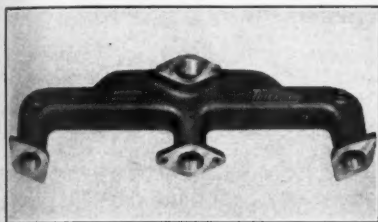
which controls pressure going to horns; whistle valve, manually operated; three air horns, connected by three-way fitting to $\frac{3}{4}$ -in. line.

Each of these pieces of equipment are installed to best suit the individual installation; however, they are always attached in the order listed. The bottle is set outside the firehouse, according to regulations, while the shut-off valve and pressure gage is located inside the building, where the attendant may get at them quickly. The pressure regulator and whistle valve are located outside, the latter

Help Beat Hitler . . . and the Japs!!

Uncle Sam needs every gallon of high octane gasoline he can lay his hands on—to fuel bombers and fighters. You can help by saving fuel! One of the sure ways to

start your drive for fuel economy is the installation of proper manifolds on all LP-Gas fueled engines. (One correct manifold saved a truck owner 6 gals. on a 500-mile trip.)



Models for Intl., G.M.C., Etc.

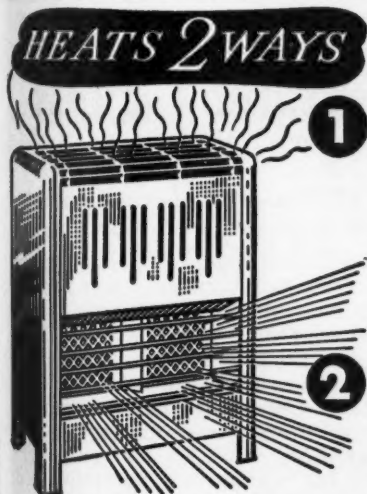
There is always a correct . . .

Thickstun

manifold for every truck. Investigate today and join the fight to save fuel.

**ELECTRIC AND CARBURETOR
ENGINEERING COMPANY**

2323 E. 8th St., Los Angeles, Cal.



GIVES YOU...

TWO-WAY

...PROFITS

**Humphrey "Open Front"
RADIANT-FIRE CIRCULATORS**

These heaters do a double job for you and your customers. There's a retail profit on their sale, and another bigger profit on the extra load they build.

To your customers, they give the double advantage of radiant heat and warm air circulated heat. Humphrey Radiant-Fire Circulators have full "open front" design for full radiant heat output. Ingenious heat-exchangers add the benefits of circulated warm air. Three sizes are available. Send for Bulletin RC-40-2 for complete sales information.

GENERAL GAS LIGHT CO., Kalamazoo, Mich.

being installed just a few inches below the horns, while the regulator is attached a few feet below the whistle. This is important as it has been found that it is unsatisfactory to carry a low pressure gas through great lengths of line as pressure is lost in so doing.

Other precautions were found advisable in these installations. The shut-off valve is of a type that can be operated by hand. In each case $\frac{3}{4}$ -in. pipe was used. All elbows were eliminated, bends being made where necessary. It was

stated that elbows caused too much restriction and in some cases caused the high pressure gas to freeze the pipe.

Each unit is inspected every week. The amount of gas in each bottle is determined by drenching the tank with a bucket of hot water which develops a frost line at gas level.



Douglas Aircraft Corp. Installs Butane-Air Plant

American Liquid Gas Corp. has recently completed installation of a butane stand-by unit at the Douglas Aircraft Corp.'s El Segundo, Calif., plant.

A 7500-gal. net capacity butane tank, wrapped and coated, was installed underground, with a high pressure liquid line running to a model D 50H gas-air machine. The butane is vaporized and mixed with air to approximately 1600 B.t.u.'s per cu. ft. and delivered through a Fisher regulator into the customer's service main.

C. W. Prewett, Jr., handled the installation for Algas.

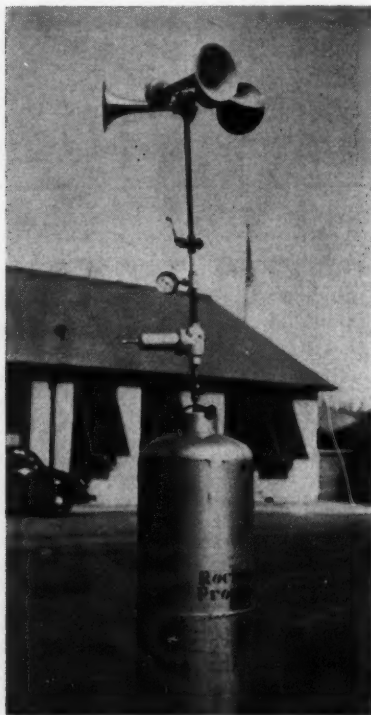


L. E. Wetzell, General Controls, Will Manage Cleveland Office

Announcement is made by General Controls Co., Glendale, Calif., of the appointment of L. E. (Rusty) Wetzell as manager of the company's Cleveland, Ohio, branch office.

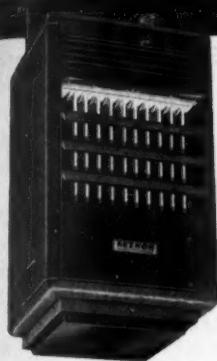
Mr. Wetzell, a graduate engineer of Purdue University, has, for the past several years actively engaged in sales engineering work for the company.

In his new position as manager of the Cleveland branch at 1505 Broadway, Mr. Wetzell will have complete charge of sales and service in Ohio, West Virginia and portions of Pennsylvania, Kentucky and Western N. Y.



Demonstration unit set up for inspection by firemen, showing all necessary equipment. In actual installation, pressure gage is just above shut-off valve.

SPEEDS "ALL OUT" PRODUCTION FOR 3 REASONS



- ① QUICKLY INSTALLED
- ② SAVES FLOOR SPACE
- ③ MORE HEAT OVER WIDER AREAS

Compared with other systems, Reznor suspended gas unit heaters require only a fraction of the usual time and material for installation, thereby saving \$1.50 to \$2.00 per square foot of radiation. Special heat exchanger tubes permit them to move more air over wider areas. Write today for Reznor's catalog showing 3 types and a complete range of sizes.

**REZNOR Gas
Unit Heaters**

REZNOR MANUFACTURING COMPANY

304 JAMES STREET

MERCER, PENNA.

"GAS HEATERS EXCLUSIVELY SINCE 1888"

Keep Your Tanks Working Concentrate On

BLODGETT

Heavy duty commercial roasting and baking ovens build and maintain real "pay" loads. Because Blodgett equipment is easy to sell, easy to install and easy to service, smart merchandisers are putting their biggest sales push back of Blodgetts.



THE
G. S. BLODGETT CO.
INC.
53 Maple St., Burlington, Vt.

Texas Dealers May Organize

DUE to the prevailing conditions in the industry brought about by defense demands, a number of Texas dealers have recently held local meetings in the state with the thought of creating a "State Butane Fuel Dealers' Association."

Meetings have already been held in Fort Worth, Greenville, Gainesville and Tyler. F. H. Greenwood, acting chairman, and J. E. Allen have been helping to sponsor the meetings. C. M. Russey presided over one recently held in Fort Worth.

Meetings to date have made evident that in the minds of a majority of the dealers contacted the time has come when some definite action toward unified effort to accomplish elimination of unsound business practice within the industry is requisite to the survival of the independent dealer.

While any plan or program to be propounded still is in a nebulous state, there is a spearhead of conviction that a desirable solution may be found in the gaining for the industry the status of a quasi-utility rating by the state.

There was a tacit admission among the group meeting in Fort Worth that violations of sound business practice chiefly in terms of indiscriminate price cutting were the common sin. Likewise, the unanimity of belief that unified action alone would accomplish elimination thereof.

Robert Ewing, of the Ewing Butane Co., Dallas, warned that every dealer could take for granted that the war would weed out the man who failed to heed its warning signals and place his business upon an absolutely sound business basis.

"If we can't do the job of putting our house in order," he said, "we can depend upon it the Government will do it for us."

"I'm not directly engaged in the fuel end of the business. However, I am vitally interested in the welfare of the fuel men. And of the industry generally."

"We can write down that the honeymoon period of this business of ours is ended and that the humdrum of married life lies ahead now. I think we all have had a fine year, and made money. We can take for granted it won't come so easily from now on."

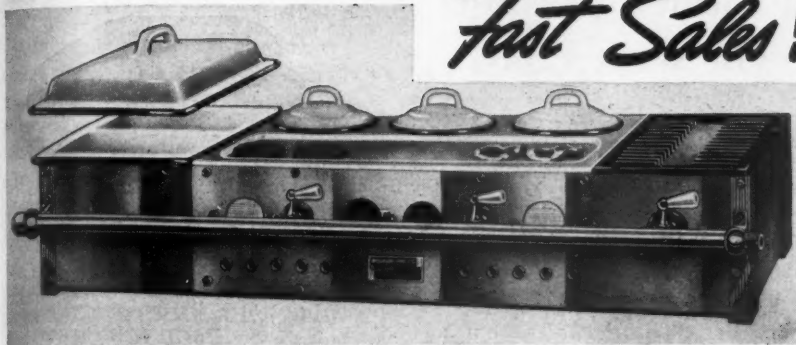
Further discussion indicated there is belief that the tire rationing order and its consequent reduction in use of cars, already beginning to be felt, will be attended by a lessening of demand for high test gasoline which will release some butane formerly required for this purpose to the LP-Gas field. This in face of the fact that the vast aircraft building program undertaken by the Government will require tremendous amounts of 100-octane fuels.



S. & H. Butane Co. Dissolves Partnership in Pomona, Calif.

Notice has been given that the S. & H. Butane Co., located at Erie St. and Holt Ave., Pomona, Calif., has been dissolved by mutual consent of the owners.

Fast Sales!



MEXIHOT BARBECUE SANDWICH MACHINES

Cash in on this popular equipment . . . sells on sight to drug stores, roadside stands, tap rooms, cafes, where you have not been able to sell your gas service before . . . increases gas consumption in the places you already service. This equipment prepares Barbecue by the Permeation method . . . prospects waiting to buy . . . low prices . . . models suitable for all businesses . . . prompt deliveries. Write today for distributors' prices.

Department B 5

DICKERSON MFG. CO. SPRINGFIELD, MISSOURI



8 Bells!

and

ALL'S WELL!

with

ANCHORGAS

ANCHORGAS IS THE NATION'S
POPULAR—HIGH QUALITY
BUTANE-PROPANE

"All's Well" for the many customers and distributors of the quality L.P.G. Anchorgas. Here is a dependable, close source of supply plus a prompt, friendly service. Anchor is one of the nation's progressive, growing manufacturers and distributors (wholesale) of Butane-Propane. It's always "Eight Bells" when you trade with Anchor; for all is well and sailing is smooth.



ANCHOR
PETROLEUM COMPANY
Atlas Life Bldg. Tulsa, Okla.

Production Gains On West Coast

PRODUCTION of liquefied petroleum gas on the West Coast for the year 1941 totaled 123,610,000 gals., an increase of nearly 34,000,000 gals. over 1940's 89,723,000 gals., representing a gain of approximately 40%.

This production came from natural gasoline plants and refineries and includes 20%, more or less, used by producers for fuel, polymerization, solvents, dewaxing, blending with gasoline, and chemical processes, leaving an estimated marketed production of 98,888,000,

as compared with 72,841,000 gals. in 1940.

Monthly production averaged 10,300,000 gals. with December showing strongest with 13,908,000 gals.

The West Coast figures as shown in Table I have been prepared by Edward T. Knudsen, head of the Petroleum Economics Division of the Bureau of Mines, Los Angeles office.

**TABLE 1. PRODUCTION OF LP-GAS ON PACIFIC COAST
1940-1941**

	1940 Production Gals.	1941 Production Gals.
Jan.	6,579,000	7,757,000
Feb.	6,002,000	7,857,000
Mar.	7,780,000	8,272,000
April	7,413,000	9,663,000
May	7,661,000	9,144,000
June	7,230,000	9,882,000
July	7,983,000	9,266,000
Aug.	7,519,000	9,022,000
Sept.	7,248,000	10,477,000
Oct.	7,950,000	14,804,000
Nov.	7,975,000	13,558,000
Dec.	8,383,000	13,908,000
Total	89,723,000	123,610,000

THOMAS Double Duty HAND TRUCKS

At last . . . an all purpose, one man truck for moving both cylinders and appliances. No more back breaking lifting, either.

Tapered body gives operator ample room between handles. Cradle construction accommodates any size cylinder up to 100 pound capacity. Wide Bottom flanges give support for appliances. Web strap (optional) holds appliance rigidly.

Rounded handle grips permit skidding from end of delivery truck. A time saving, labor saving, cost cutting truck.

Write for prices and descriptive folder.

**THOMAS TRUCK
and CASTER CO.**
532 Mississippi River
Kookuk, Iowa



Elkin's Butane Gas Co. Makes Large School Installation

The Granby Consolidated School District, of Granby, Mo., has recently accepted a butane installation for its school which was made by Elkin's Butane Gas Co., of Wheaton, Mo.

The installation consists of a 326-gal. Thermo-Syphon butane system, made by the National Butane Gas Co., of Memphis, Tenn.; two Magic Chef ranges, manufactured by the American Stove Co., of Cleveland, Ohio; an automatic water heater; two hot plates, and 14 outlets in the home economics and domestic science room.

FOR MORE SATISFIED CUSTOMERS

For a More Dependable Source of Supply—A Stable and More Uniform Fuel—A Higher Quality Product—Look into the advantages of Carter Propane and Butane.

Write today for complete information. Address: The Carter Oil Company, Marketing Department, Room 928, National Bank of Tulsa Building, Tulsa, Oklahoma.

DEHYDRATED *Propane and Butane* **THE CARTER OIL COMPANY**

TULSA, OKLAHOMA

Shipping Points: Seminole, Okla., Stonewall, Okla., St. Elmo, Ill.
WHOLESALE ONLY!



INVESTIGATE! SPRAGUE No. 0

a NEW, SMALL meter designed specifically for the measurement of L-P Gases. Rugged, made of cast iron, and simplified in construction. Delivers at $\frac{1}{2}$ " W.C., 60 cu. ft. Propane, 55 cu. ft. Butane.

Write now for Bulletin 23-A

SPRAGUE METER CO.

BRIDGEPORT, CONN.

PRINCETON, IOWA • HOUSTON, TEXAS • LOS ANGELES, CAL. • SAN FRANCISCO, CAL. • ST. LOUIS, MO.

MARCH 1942

Pacific Coast Section Meets March 13

A MEETING vital to the interest and future of every LP-Gas producer, distributor, dealer and appliance and equipment manufacturer on the Pacific Coast will be held in San Francisco on March 13 at 10:00 A.M. in the St. Francis hotel, according to Chas. E. McCartney, Chairman, Pacific Coast Section, Liquefied Petroleum Gas Association which is sponsoring the meeting.

For almost a year, the national officers of Liquefied Petroleum Gas Association along with officers representing the Pacific Coast Section have been attending conferences and working with officials of the various governmental agencies in Washington, D. C., in behalf of not only the members of the Association but of the entire industry. Present at the San Francisco meeting to report on conditions in general will be Frank R. Fetherston, national secretary, L.P.G.A., who has attended every industry meeting with governmental bodies in Washington. Other officers of the national association will be present to present short talks on existing conditions. While no definite commitment has been received as this goes to press, an attempt is being made to have a representative of the government present who will speak before the meeting.

Other speakers will include Chas. E. McCartney, on "What the Outlook Is Today." C. L. Parkhill, member of the L.P.G.A. national executive board and former Pacific Coast Section Chairman, will present "The Liquefied Petroleum Gas Association and the Pacific Coast." Subjects to be covered in the all around discussion include what the dealer and distributor can expect under war conditions and preservation of the indus-

try under existing conditions. The meeting will adjourn at noon for luncheon and resume in the afternoon session. Newly elected officers of Pacific Coast Section will preside. The meeting is open to all interested, whether members or not, and there will be no registration fee. Those planning to attend should write John H. Kunkel, Secretary, Pacific Coast Section, Liquefied Petroleum Gas Association, 210 West 7th St., Los Angeles, so that arrangements can be made for their convenience.



Wilbur Boone Appointed to Skelgas in Hoffman, Minn.

Announcement has been made by the Lake Region Oil Co. that Wilbur Boone will be its salesman for the Skelgas line of appliances and equipment in the territory near Hoffman, Minn.

Mr. Boone will have charge of the company's trailer used for demonstrating the Ske'gas line.



Bend, Ore., Installs New LP-Gas Plant

Leo Connor, chief engineer at the California-Pacific utilities plant in Needles, Calif., recently superintended the installation of a butane gas plant by the Consumer's Gas Co. in Bend, Ore. He also examined the plant of the Boise Gas and Coke Co., Boise, Idaho.



Charles R. Baird, Jr., Becomes Prescott, Ariz., Bu-Gas Manager

Charles R. Baird, Jr., of Los Angeles, has been selected to handle Bu-Gas sales in Prescott, Ariz.

He succeeds Barney York, former manager.

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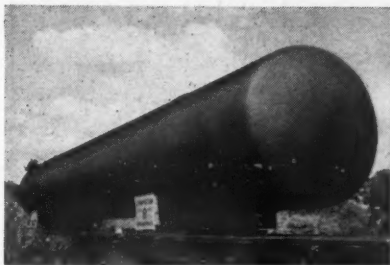
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New

THE tank for propane storage is only as good as the fabricator makes it . . . Much depends on his specifications for materials and his choice of procedure for handling them.

Downingtown has acquired considerable knowledge and experience in building tanks for this service; we know the answers to its problems. We can furnish the **RIGHT** tank for the use, underground or



DOWNTOWN IRON WORKS
DOWNTOWN, PA.
WELDED and RIVETED PRODUCTS

above-ground. Get a Downingtown bid—**FIRST!**

Shown above is a recent fabrication . .
A propane storage tank 84" dia. x 65'
10" long, constructed for 200 lbs. W. P.

Specialists **in PROPANE TANKS**

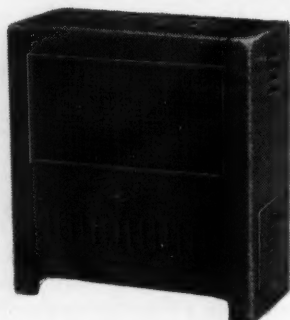
Warren LP - Gas

One Soldier . . . Our Job . . . and Your Patience

Most everyone knows that butane is vitally necessary in the manufacture of 100 octane aviation gasoline, or as a source of heat and power for the manufacture of war machines and supplies. Yet, a soldier may never fly a plane, drive a tank, or ride in a "jeep" . . . and still use gallons of LP-Gas.

His steel helmet may be processed by LP-Gas, the clothing he wears may be manufactured with power from LP-Gas, even the food he eats may be canned, baked, or cooked with LP-Gas. Thus, you can see what our job becomes when we pledge ourselves first to the American war effort. And we are sure you will understand, and be patient in this co-operative effort with our government. Warren Petroleum Corp., Tulsa, Oklahoma.

L-P CIRCULATORS



Write today for Catalog and prices of the
BRILLIANT FIRE line of High Efficiency
Gas Circulating Heaters.

The OHIO FOUNDRY
& MANUFACTURING CO.
Steubenville, Ohio

Order These Famous L. P. Gas
Products From Us



BASTIAN-BLESSING

THE DAYTON-DOWD CO.

Hackney

BUTANE PROPANE CYLINDERS

L.C. RONEY INC.

The IMPERIAL
BRASS MFG. CO.

GAS EQUIPMENT CO., INC.

2620 South Ervay Street, Dallas, Texas

GAS EQUIPMENT SUPPLY CO.

1157 West Peachtree Street, Atlanta, Georgia

George Stevenson Promoted By American Meter Co.

George Stevenson, sales engineer, has been appointed assistant manager of American Meter Co.'s Pacific Coast factory and sales service, with headquarters in Los Angeles.

The promotion comes in recognition of Mr. Stevenson's 14 years of service of the company. After attending California Teachers' College and subsequently graduating from the Polytechnic High School, in San Francisco, he joined the office force of American Meter Co.'s branch in that city. By 1930 he had become general office clerk, and six years later was appointed sales engineer and transferred to the Los Angeles branch.

Mr. Stevenson is a member of the American Gas Association, the Pacific Coast Gas Association and the California Natural Gasoline Association.

LP-Gas Used For Soldering In Sebeka (Minn.) High School

A recent modernization of the industrial arts department of the Sebeka High School, Sebeka, Minn., included the installation of LP-Gas for soldering.

The department is now equipped to take care of classes in mechanical drawing, woodwork, sheet metal, soldering, lathe, forging and farm mechanics.

Anchor Petroleum Co. Expands Office and Personnel

Due to the increasing demand for its product, "Anchorgas," the Anchor Petroleum Co., Tulsa, Okla., has recently added to its personnel and to the capacity of its office quarters in the Atlas Bldg.

Five additional rooms have been acquired. All of the offices have been remodeled throughout.

BUTANE-PROPANE News



KERO TEST PROPANE-BUTANE CYLINDER VALVE

Automatic spring safety vent releases *only* excess pressure.

Diaphragm packless construction assures long service—low maintenance. **WRITE** for Catalog

KERO TEST MANUFACTURING COMPANY
PITTSBURGH PA

BUTANE and PROPANE TANK HEADS

A.S.M.E. type
for the manufacturers of
BUTANE & PROPANE TANKS

***** STANDARD RADIUS *****

***** 80% RADIUS *****

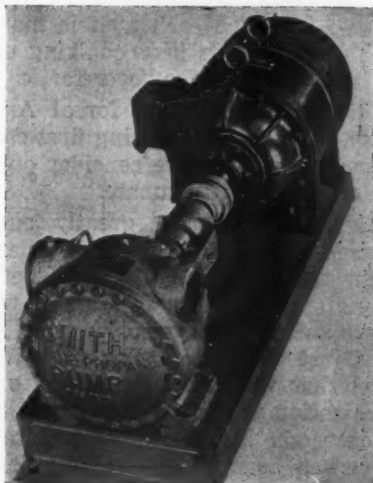
***** ELLIPSOIDAL *****

DIAMETERS UP THROUGH 60"
THICKNESS UP THROUGH 1/2"

Write for Head Catalog

The COMMERCIAL SHEARING &
STAMPING COMPANY
YOUNGSTOWN, OHIO.

ORDER YOUR SMITH BUTANE PROPANE PUMP NOW



Best for
**PRESSURE
VOLUME
SAFETY**

8 Models for Every Requirement

SMITH PRECISION PRODUCTS CO.
1135 Mission St. South Pasadena, Calif.

SMITH
BUTANE - PROPANE
PUMPS

MARCH-1942

The "Over-Forties" Put Over Sales

THERE have always been discussions as to whether men over 40 years of age are as successful in selling as younger ones. I would not presume to offer a final answer to the question but I know one group in which each man is more than 40 that has been chalking up a good score for the "over-forties."

It is our own sales force! And now, with the war having first call upon young men, we consider ourselves specially fortunate.

Many people are greatly surprised to learn that all of our salesmen are over the age of 40. There is no special reason for this as we have not tried to get older men. It has just worked out this way. We feel that we have a very fine organization. For one, there is E. J. House, who is a World War veteran and has been in the selling field ever since; A. K. Cliff, who is a grandpa as well as a Yankee, has done a wonderful job selling Southern people, which I think is very unusual for a Northerner; Vic Miller was a welter weight champion wrestler of the world at one time; and there is E. E. Pace, who has young ways, even though he is a grandpa.

All of these men have done an outstanding job for us and I believe they have our business interest at heart. We do not work them on a straight commission. We furnish them an automobile which we trade in for them as often as necessary. This car is to be used as their own as long as they are with us.

By W. G. PETTY, JR.

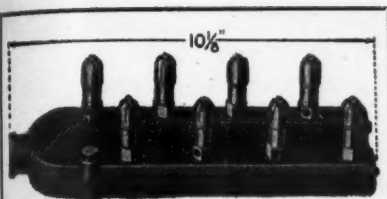
W. G. Petty & Son, Memphis, Tennessee

We also pay them a salary and expenses, as well as a small commission on each job that they sell. All of the men have their own territories which they develop, and receive credit for any sales originating in those territories. We do not think that these men are better salesmen than young men but do believe that they are more dependable and settled.

W. M. Petty is our engineer and service manager of the whole territory. J. D. Petty has charge of our Senatobia office and bulk plant. C. P. House operates Petty-House Gas Co. at Cleveland, Miss.

We are operating in west Tennessee and northern Mississippi and recently installed a fifth bulk plant. We have 10 1000-gal. trucks, as we have found that service to the user is the shortest route to new customers.

We do some newspaper advertising, but the main thing that we all do is to work to find new customers, "in the bird dog manner," and give service to our users. We have been very fortunate in having an organization in which there is complete harmony—one in which a man is willing to help another even when there is no obligation to do so and no profit returns. I think this one point means the success of a business more than any one thing that I can name.



No. C. L-80 Barber Burner

BARBER APPLIANCE BURNERS

The burner is the heart of the appliance. Barber Burner Units are correctly designed, with the proper jets, to fit the individual appliance, and give complete combustion on Butane-Propane Gas. Appliance makers and fuel distributors assure better service and economy for their customers by recommending the use of Barber Burners. Submit your burner problems to us. Catalog of complete line on request.

THE BARBER GAS BURNER CO.

3704 Superior Ave.

Cleveland, Ohio

PITCO Fryalators

REG. U.S. PAT. OFFICE

ARE DUAL USAGE L. P. GAS APPLIANCES

Deep-Fat Frying at Its Best

- ★ Customers can serve a wider variety of fried foods.
- ★ Left-overs or by-products quickly converted into daily specials.
- ★ Increase in customer business means increase in the gas load.
- ★ Actual saving in fat alone more than pays total cost of gas required to operate them.

Do Your Part . . . Conserve Fat

Send for 1942 Illustrated Catalog.

J. C. PITMAN & SONS,
INCORPORATED

711-719 Broad St.

Lynn, Mass.

We'll be happy to serve you when it's over!

When the country's best interests again permit expansion of liquefied petroleum gas marketing Philgas will, as before, offer outstanding advantages as a supplier of Propane and Butane

Present customers find that Philgas brings them the most complete production, shipping and service facilities in the industry, together with the assurance of quality products, produced to rigid specifications.

Philgas is proud to share the industry's contribution to serving the nation's needs in the war emergency, and pledges its full participation in the common effort.

Philgas
DIVISION

PHILLIPS PETROLEUM COMPANY

**GENERAL MOTORS BUILDING
DETROIT, MICHIGAN**

NEW YORK

MILWAUKEE

PHILADELPHIA

ST. LOUIS

CHICAGO

AMARILLO

BARTLESVILLE, OKLA.

**THE NATION'S LARGEST MARKETER
OF LIQUEFIED PETROLEUM GASES**

**Pacific Coast Distributors for
Bastian-Blessing L.P.G. Equip-
ment • Dayton Dowd Pump Co.
International Distributors for
Day & Night I.C.C. Cylinders
Manufacturers of
Vapor Differential Compress-
sors; Roney Valves & Fittings**

**LARGEST AND MOST EXPERIENCED
MANUFACTURING ENGINEERS AND
JOBBER OF L. P. G. EQUIPMENT**

**Whatever the Need
Whatever the Problem
"WRITE RONEY"**

L.C. RONEY INC.
1740 44 W 59TH ST. • LOS ANGELES, CALIF.



ENGINEERED FOR LIQUEFIED GAS
Today there is greater need than ever for Crown Ranges because they are scientifically built to conserve the valuable nutritional elements and vitamins in foods.

There may be shortages in metals and other materials used in gas ranges, but Crown quality stands supreme as always . . . assuring the best cooking and baking results. **Get your sales in early.**

CROWN STOVE WORKS

4631 W. 12th PLACE, CHICAGO
Manufacturers of BUFFET and DIVIDED TOP GAS RANGES

Shell Is Playing Important Part in War Projects

R. G. A. van der Woude, president of Shell Union Oil Corp., has announced that several large projects for the production of war material this year are now under construction by Shell, or awaiting Government approval. The company is discussing with the Government the erection of a plant which will produce thousands of tons of butadiene annually, a necessary ingredient of synthetic rubber. This is in addition to a plant completed last year which is already producing butadiene at the rate of several thousand tons a year.

Several more plants for the production of toluene, basic ingredient of T.N.T., are now under way and will supplement the plants now in operation.

Mr. van der Woude said that Shell is now working on new plants for the manufacture of high octane aviation gasoline. This will increase Shell's already large output of this essential aviation fuel by nearly 70%.

For military reasons, locations of the sites were not revealed.

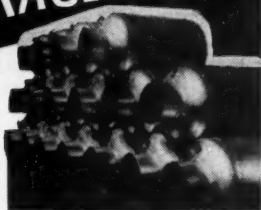
Smith Meter Co. Fire Does Small Damage

A fire which occurred in the Los Angeles plant at the Smith Meter Co. on the night of January 21, caused some damage in several departments, company officials state.

Of undetermined origin, the fire destroyed part of the assembly and shipping departments and a small amount of the finished parts stock. There was no damage to the machine shop or other branches of the factory. Loss was not nearly as great as first reported.

Company officials state that production, resumed within 48 hours after the fire, is now back to normal.

Modern L.P.G. STORAGE TANKS



American Butane and Propane Tanks are built to meet every demand . . . they have been chosen by outstanding users of liquid petroleum gases because of superior construction, better materials, fabrication by experts . . . and because every American High-Pressure Tank gives a more efficient service for a longer period of time.

To help you solve your future needs, call in American Engineers for a consultation . . . there is no obligation.

AMERICAN PIPE & STEEL CORP.

Manufacturers and Distributors
Alhambra California

DEFEND HEALTH

WITH A

CONTINENTAL WATER HEATER

AMERICA NEEDS
PHYSICAL FITNESS

Good health depends on
cleanliness and cleanliness
depends on hot water.

A.G.A.
Approved



Continental
WATER HEATER CO. LTD
1801 Pasadena Ave., Los Angeles



SPARTAN
Automatic
Storage

Keep Tryin' - Keep Smilin' Remember JOB NO. 1 IS TO WIN THE WAR

Guns, planes, ships, tanks, food and supplies come **FIRST** as Uncle Sam's forces fight to victory.

That's why Viking production today is devoted largely to War demands. Every day scores of Viking Rotary Pumps are rushed to completion and shipped out to help with vital War production work from coast to coast. That's why, much as we regret it, sometimes we are unable to give usual prompt Viking service on orders received from valued customers in non-defense industries.

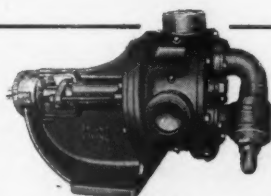


Figure 124—Inside and out, Viking's Butane-Propane pump is built for greater safety. Bulletin 2302-41 gives complete information. Write for it.

To help you get utmost delivery from your present pumps, the Viking Service Manual explains and illustrates correct installation . . . how pumping efficiency may be stepped up . . . how some repairs and replacements may be avoided. It's free. Write for your copy today.

**VIKING PUMP
COMPANY**
CEDAR FALLS, IOWA

Adolph E. Meier Killed In Philippine Action

Louis L. Meier, of American Stove Co., Pacific sales division, San Francisco, recently received a telegram from Washington, D. C., informing him that his eldest son, 1st Lieut. Adolph Edward Meier, U. S. Army, 25 years old, was killed in action in defense of his country in the Philippine Islands Jan. 12. After graduation from high school, Adolph was awarded a scholarship to the University of California, where he received the degree of Bachelor of Science in 1939. He was active in sports and taught soccer at the University following his graduation. His death is the first Philippine casualty recorded by the University of California.

Besides his father and his mother, Mrs. Celestine Meier, Adolph is survived by four younger brothers, three of which are now active in military service or training. Louis Jr. is an Ensign in the U. S. Navy; John, 21, is in the Naval R. O. T. C. at the University of California; Raymond, 15, wears the chevrons of a corporal on his high school R. O. T. C. uniform, and Bobby, 12, is the youngest.

Expansions Relieve Congestion At Wyatt Metal & Boiler Works

Several expansions have been necessary during the past year in the office and plant of the Wyatt Metal & Boiler Works in Dallas and Houston, Texas.

Among these, and the last to be made, is a new shop office building at Dallas which provides a private office for the plant superintendent and another one for inspectors representing outside firms, including a Hartford steam boiler inspector who is at the plant all of the time.

The new offices are equipped with shower bath, lavatories, lockers for all employees, and are sufficiently large

to house the necessary clerical staff, shipping clerk and foreman.

The inside is finished with the latest in two-tone wall board paneling. Both walls and ceiling are fully insulated against shop noises and heat. Although the office adjoins the shop building it is free of it, with an insulated connecting passageway to make sure none of the sounds or vibrations from the shops reach into the office.

Mesa Verde Co. Installs Two More Hydrogas Systems

In preparation for an expected increase in Summer tourist trade, in spite of war conditions, Ansel F. Hall, general manager of the Mesa Verde Co., operators of Spruce Tree Lodge and other tourist facilities in Colorado's Mesa Verde National Park, is preparing to move his winter offices to the nearby town of Mancos, Colo., from Berkeley, Calif.

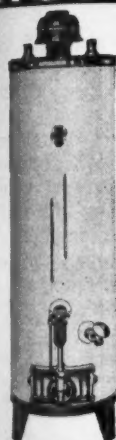
For some years Spruce Tree Lodge and other tourist quarters have been utilizing a butane installation. Now Mr. Ansel has installed two more Hydrogas systems. One, of 1100-gal. capacity, operates a new "quick freeze" and locker plant at Mancos, and the second, of 600-gal. capacity, was installed in his newly purchased home in Mancos.

The locker plant is electrically equipped, but a Waukesha butane motor was added for auxiliary power. After the first month's test run, it was discovered that the cost of operating the butane motor was only 20% of the electrical bill for an equal period.

Bemidji Bottlegas Co. Serves Carrington, N. D.

The Bemidji Bottlegas Co., of Bemidji, Minn., has a distributing plant at Carrington, N. D., instead of the Home Gas Co., as was mistakenly published last month.

HOTSTREAM "V" LINE



WATER HEATERS

- ★ Porcelain enameled
- ★ 15, 20, 30, 40, 60 gallon capacities
- ★ New fusion-weld process
No gaskets used
- ★ Approved A.G.A.
Accepted F.H.A.,
U.S.H.A., P.B.A.,
War Department
- ★ Guaranteed 20 years

Deliveries at Once

THE HOTSTREAM HEATER COMPANY

8007 Grand Avenue • Cleveland, Ohio

McNAMAR *Tanks*

- TRUCK TANKS
- TRANSPORTS
- SKID TANKS
- STORAGE TANKS
- UNDERGROUND SYSTEMS

All tanks ASME U-69, inspected by
Ocean Accident & Guarantee Corp., Ltd.

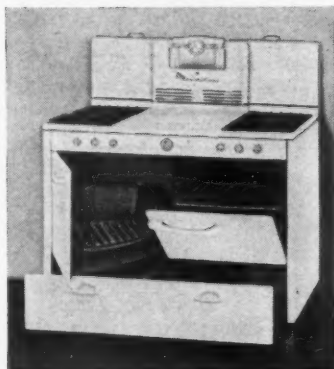
McNAMAR BOILER AND TANK COMPANY

Tulsa, Oklahoma Salem, Illinois



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CONVINCE prospects that gas cooking is quick, clean, efficient and economical with a Magic Chef Range! Our Research Laboratory pioneered in developing ranges for efficient operation with LP-Gas. Customers demand Magic Chef! A complete line. Wide price range.



The new Magic Chef All-American has every modern feature a woman wants in a gas range! Sturdily built for years of use!

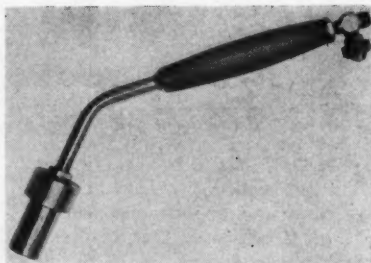
Magic Chef

THE GAS RANGE WITH THE
LIFETIME BURNER GUARANTEE
COPYR. 1942 AMERICAN STOVE COMPANY

WRITE TODAY for details of complete line and information on modern sales promotion aids to make your selling easy.

AMERICAN STOVE COMPANY
4301 Perkins Avenue . . . Cleveland, Ohio

F & E



Hand Torch Model No. 35
 Superior for Melting Out Lead Joints
"Sell Tomorrow's Equipment Today"

Write to
F. & E. MFG. CO.
 P. O. Box D Centerville, Calif.

L.P.G. Dealers Attention
BE
PREPARED
FOR

SUB-ZERO
Temperatures

Use our
 Winter Grade
BUTANE-PROPANE
 Mixtures.

Long term contracts solicited.

Clute Petroleum
Company
 National Bank of Tulsa Bldg.
 Tulsa, Okla.

Ingenious Plan Will Save Rubber for Defense

William F. Lowe, secretary of the National Gasoline Association of America, Tulsa, Okla., has, at the suggestion of George Probst, instituted a plan for members of his organization that may well be applied to the liquefied petroleum gas industry in many instances. His office will act as a clearing house for men on the road who, by "doubling up" on various trips, can make substantial savings in tires and gasoline.

This is Mr. Lowe's story:

Recently in the waiting room of one oil company in Bartlesville, George met five other sales representatives, each of whom had driven alone from Tulsa in his own car to make calls that day in the same city. In view of the seriousness of the tire shortage and general automobile situation, the use of all these cars seemed not only unpatriotic but also poor business. They all agreed that one car, or certainly two, would have been ample if there had been some doubling up. Out of this discussion came this idea. Why not have some central clearing house to arrange for doubling up and when trips are planned, phone in your desires or intentions to that office the day before and get an assignment to ride with others or get others to ride with you.

Mr. Lowe's office will keep track of who rode with who on what dates, and the destinations, in order that there may be a reasonably equal distribution of mileage for all cars.



Bottled Gas Installed In Alexandria, S. D., Schools

Among recent improvements in the Alexandria, S. D., school's shop and laboratories was a bottled gas installation in both departments. The LP-Gas will be used for the Bunsen burners and a hot plate. With these appliances, a greater line of experiments in chemistry and more soldering in the shop can be carried on.

New laboratory equipment has also been added and a paint room built.

BU-PRO-FIRE

★
HEATERS AND
FLOOR FURNACES
FOR L. P. GASES
★



Bu-Pro-Fire Heaters and Floor Furnaces are designed and built especially for use with liquefied petroleum gases. Every Model is finished in "Lifetime" Porcelain Enamel and is guaranteed to give satisfactory Heating Service. A wide range of sizes provides a Model for every heating need. A. G. A. Approved. Write for illustrated catalog and prices.

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Nashville, Tennessee

NATIONAL Thermo-Syphon SYSTEM

and

National Automatic Gas SYSTEM

Patented Systems
Protected Territories

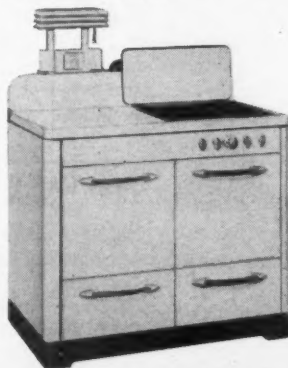
Write or Phone

National Butane Gas Co.
MEMPHIS, TENNESSEE

DEFENSE COMES FIRST WITH CAVALIER

War's sudden thrust has made DEFENSE everyone's first duty. Cavalier is now working on war orders and our plants are available to do anything possible to help win this war. We have established the policy of figuring prices on government orders only high enough to maintain the financial integrity of the company.

It is possible that our entire appliance facilities may be required for government work. No one can foretell the future. But so long as we are allowed to build gas ranges we will do so. The quality of the Cavalier Gas Ranges we do produce will be of the highest—whatever the quantity. Each of our dealers will receive his fair share.



CAVALIER Cool-Kitchen RANGES



Cavalier GAS RANGES

CAVALIER CORPORATION
345 W. First St.
Chattanooga, Tenn.

MARCH-1942

A.G.A. Testing Laboratories Issue 1942 Directory

The American Gas Association Testing Laboratories have issued their Directory of Approved Gas Appliances and Listed Accessories for January, 1942.

One of the major changes in the new directory has been relisting of equipment certified for liquefied petroleum gases as well as for natural and manufactured gases. When models have been tested and approved at the same ratings for all these gases it was possible to eliminate their repetition under appropriate headings. In their place a statement, "Same model numbers and types as indicated above for natural and manufactured gases," has been added. This change serves to clarify the directory.

Another change which deserves special mention was first incorporated in the Oct. 1, 1941, directory. Domestic gas ranges were classified for the first time therein according to the manner in which they were tested at the Laboratories to insure safe and satisfactory wall temperatures. Classified under four major types as designated in Fig. 1, distances at which

they may be spaced from combustible side walls and back are given as a guide for their installation in consumers' homes:

The current directory represents an increase of nearly 15% over the corresponding January, 1941, issue. Totaling 313 pages, it is the largest January issue published by the Laboratories.



Jane Tiffany Wagner Joins Standard Brands, Inc.

Jane Tiffany Wagner, well-known home economist and authority on food and household equipment, has joined the department of public relations of Standard Brands, Inc., where she will be in charge of the home economics and consumer service.

After teaching home economics in her native state of Iowa, Miss Wagner became home economist for the Certo Corp., Rochester, N. Y. From there she went to The Consolidated Gas Co. of New York and affiliated gas companies as director of the home service division and later to Serrel, Inc., of New York, as director of home economics.

FIG. 1. GAS RANGE INSTALLATION GUIDE

Type of Range	Spacing of Top Burner Opening From Side of Range	Distance from Combustible Walls—Inches			
		Sides		Rear	
		Wall Not Extending Above Cooking Top	Wall Extending Above Cooking Top	Body of Range	Projecting Flue Box
Type A Uninsulated	6	6	6	1
Type B Insulated	Less than 5 in. 5 in. or more	$\frac{1}{2}$ $\frac{1}{2}$	3 $\frac{1}{2}$	1 1	1 1
Type C Flush-to-Wall	Less than 5 in. 5 in. or more	Flush Flush	3 Flush	Flush Flush

Type D ranges include combination gas ranges, which may also be operated with solid or liquid fuel; bungalow type gas ranges with solid or liquid fuel-burning sections; and gas ranges with approved gas space heater sections.

IN TEXAS IT'S
THE BUTANE COMPANY

for
**WHOLESALE DELIVERIES
 DIRECT TO YOUR BULK
 STORAGE PLANT.**

the
BUTANE
Company

• BROWNWOOD, TEXAS

WHOLESALE TRANSPORTERS—DISTRIBUTORS OF BUTANE

*For Safety
 and Economy*

**ETHYL
 MERCAPTAN**

—Purified—

The **ACCEPTED**
 standard
 odorant
 for liquefied
 petroleum
 gases.

**MALLINCKRODT
 CHEMICAL WORKS**

ST. LOUIS

NEW YORK

MARCH-1942

Help Uncle Sam!

**SHOW YOUR CUSTOMERS HOW
 TO MAKE THEIR URNS LAST**

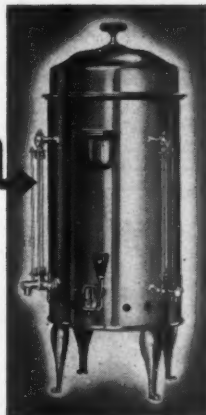
• The metals ordinarily used in the manufacture of coffee urns are being requisitioned by our government to help our nation achieve total victory. The LP-Gas dealer can do his bit for conservation by showing his customers how to prolong the life of their coffee urns and similar appliances.

Your Customers Will Appreciate This Advice

**PREVENT
 BURN-OUTS**

*Watch the Water
 Jacket Gauge*

• Water in jacket should always be about $\frac{3}{4}$ full. Otherwise, urn may run dry and resultant excessive heat at bottom will melt solder in joints. This will cause leaks, force inconvenient shut-downs or even ruin that urn completely.



• Blickman coffee urns, steam tables, luncheonettes, etc., are everywhere building good-will for the LP-Gas dealers who sold them. Efficient, economical and trouble-free operation of these appliances is a guarantee of customer-satisfaction which will bear extra dividends for your future LP-Gas load-building.

S. BLICKMAN, INC.

Manufacturers of Food Service Equipment
 2103 Gregory Ave. • WEEHAWKEN, N. J.

DEARBORN GAS HEATERS

The Quality Line with Outstanding

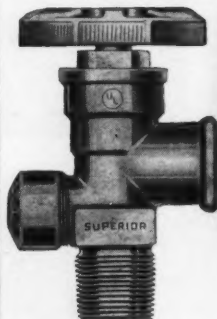
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REVOLUTIONARY SAFETY FEATURE
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THE MIRACLE L.P.G. BURNER
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AUTOMATIC LIGHTING FOR SAFETY
- RICH-WOODS FINISH
BEAUTY OF FINE WOOD. DURABLE
- SIFONAIRE CHASSIS
PATENTED. NOTHING ELSE LIKE IT
- A.G.A. APPROVAL
18 MODELS ALL L.P.G. APPROVED

DEARBORN STOVE COMPANY

3256 MILWAUKEE AVE., CHICAGO
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Superior LP-GAS CYLINDER VALVES



Listed as
Standard
and for
Re-examination
Service
By
Underwriters'
Laboratories



Write for
Bulletin LP-8
For details on

cylinder valves; and valves and accessories
for bulk stations; above and below ground
installations.

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ACTIVE PARTNER BEYOND DRAFT AGE for wholesale-retail propane business in middle west; or will sell. Box 75. BUTANE-PROP. PANE News, 1709 W. 8th St., Los Angeles, California.

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11,000 TO 15,000 GALLON STORAGE TANK. Specifically designed and built under A.S.M.E. code for propane 100% gas 200 lbs. W.P. at once. Dakota Gas and Appliance Co., Newell, South Dakota. Wire price F.O.B. Newell.

WANTED: ANY SIZE PROPANE TANKS Box 70, BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles.

WANTED PROPANE OR BUTANE TANKS and Regulators any size or style regardless of age. Clear title necessary. State price. Box 495, Syracuse, New York.

WANTED: 100 SCAIFE OR HACKNEY REG- ular propane 100-pound capacity cylinders. Write or wire us what you have. If you do not have this quantity we will take any amount you have. GLACIER DISTRIBUTORS, Cut Bank, Montana.

EQUIPMENT FOR SALE

A LAST CHANCE TO BUY L P G CYLINDERS. We have for sale 300 L P G cylinders which were in Blau Gas Service. Following are some of the details on these cylinders: Hold 20 lbs. of Propane, tested at 3,000 lbs., no ICC markings, diameter 5 1/2", height 47", square bottom ring, weight 45 lbs., capacity 830 cubic inches. These cylinders are a real buy. For full details, picture and price, write BURDETT OXYGEN COMPANY OF CLEVELAND, 3300 Lakeside Avenue, Cleveland, O.

COMPLETE TRUCK UNIT CONSISTING OF 1,000 gallon, 125 lbs. A.S.M.E. Butane Tank mounted on 1941 K-6 International Truck with Butane Fuel Tank and Carburetor. Also separate 1,000 gallon, 125 lbs. A.S.M.E. Propane Tank. Write Box 461, Centralia, Illinois.

200 GALLON CAPACITY BUTANE TANKS 125 pounds working pressure. Also Propane Tanks, 500 gallons capacity and up to 1,000. Excellent condition. Write to Power Construction Company, Minneapolis, Minnesota.

BUTANE-PROPANE News



Consult Algas!

Anticipate your future needs by investigating the merits of a propane or butane installation today. Algas offers a complete engineering department, equipped to design and build any propane or butane installation—anywhere!

American Liquid Gas Corp.
LOS ANGELES CHICAGO

FauceHot

Gas Water Heater with *Aire-Lok*



Aire-Lok is radically NEW, totally DIFFERENT! Reduces stand-by loss by LOCKING OUT cold air without use of gadgets or mechanical attachments; assures remarkable fuel economy. Especially designed, Base equipped, for LP gases. Write for complete details.

FauceHot HEATER CO.
LA PORTE INDIANA
Chicago office: Peoples Gas Bldg.

HOT Water

UNITED STATES

Automatic Water Heaters

Approved by A.G.A. for
Liquefied Petroleum Gas

United States Heater Co.
COMPTON, CALIFORNIA

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Butane-Propane NEWS Research Department

for assistance. Our technical staff will gladly endeavor to answer all legitimate inquiries (except legal and financial) about the LP-Gas industry which regular subscribers choose to submit.

Use this sheet or your own letterhead.

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Mail to BUTANE-PROPANE News,
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UP-GAS CYLINDERS ARE
BALANCED
UNIFORM STRENGTH
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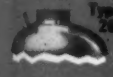


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To eliminate human errors and resultant losses in handling butane, metering alone is not enough—metered gallonages must be mechanically computed, automatically totaled and plainly registered so that readings can't be misfigured and figures can't be misread. This is why efficient marketing operations require Brodie Meters and Brodimatic direct-reading counters. Positive snap-action numeral change keeps large legible numbers always in full view. Direct totals can be more plainly seen and more accurately read at-a-glance, even from a distance. Mental calculations and guesswork are avoided. Write today for full details.

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